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Department of Defense Physical Strength and Job Performance

Survey: Report on the Ability of First-Term Enlisted Personnel to Perform Physically Demanding Work

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In response to a report by the Government Accounting Office (GAO), the Department of Defense (DOD) conducted a mail survey of personnel in the Army, Navy, Air Force, and Marine Corps to determine the beliefs of first-term-of-enlistment personnel and their supervisors regarding the ability to perform physically demanding tasks. Within each service, 10 occupational specialties with moderate to high strength requirements were identified as the target populations for the *DOD Physical Strength and Job Performance Survey*, consisting of about 30 items. There were two parallel survey formats, one for first-term incumbents and one for supervisors, with supervisor responses intended to confirm (or contradict) those of incumbents. Incumbents reported their own experiences regarding over-exertion injuries, physical strength, endurance, and physical fitness. Supervisors were asked analogous questions about the first-term personnel they supervised.

The results paint a positive picture regarding physical strength, physical endurance, over-exertion injuries, and physical fitness. In spite of a minority who reported problems, they were not pervasive, and they appear to have only minor effects on job performance and unit readiness. Supervisors, though somewhat less positive than incumbents, generally supported their views. While these results are encouraging, they should not invite complacency in the Services regarding physical strength or the related areas of physical endurance or over-exertion injuries. Though survey results provide support for the Service assertions that there are no serious problems with physical strength and fitness in general, it is nevertheless important that the Services remain vigilant in this regard.

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Foreword

Given the demands placed on this country's military services, it is essential that personnel possess adequate physical strength to perform assigned work. In response to a Government Accounting Office (GAO) report entitled *Physically Demanding Jobs: Services Have Little Data on Ability of Personnel to Perform* (1996), the Department of Defense (DOD) conducted a mail survey of personnel in the Army, Navy, Air Force, and Marine Corps to determine the beliefs of first-term-of-enlistment ("first-term") personnel and supervisors regarding their ability to perform physically demanding tasks.

The project was a joint effort of the Department of Defense (Office of the Assistant Secretary of Defense for Force Management Policy [OASD(FMP)]) and the Navy Personnel Research and Development Center (NPRDC). OASD(FMP) defined the target populations for the research and developed early drafts of the survey instrument, and provided reimbursable funding for NPRDC to finalize the survey, conduct two mailings, analyze the survey data, and provide a draft report to OASD(FMP). This Technical Note covers the same material and reports the same results as that provided in the draft report provided to OASD(FMP).

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Director

Summary

Background

In response to a report by the Government Accounting Office (GAO) entitled *Physically Demanding Jobs: Services Have Little Data on Ability of Personnel to Perform* (1996), the Department of Defense (DOD) conducted a mail survey of personnel in the Army, Navy, Air Force, and Marine Corps to determine their ability to perform physically demanding tasks. The survey was sent to about 44,000 personnel in their first term of enlistment ("incumbents") and to about 13,000 enlisted supervisors.

Within each service, 10 occupational specialties with moderately high to very high strength requirements, as defined by the services, were identified as the target populations for the survey. Sampling techniques were used to identify incumbents and enlisted supervisors within each occupational specialty, and each of these individuals was mailed a survey.

Results and Discussion

Over-Exertion Injuries

Nearly 80 percent of incumbents said they had not had any over-exertion injuries in the past year, with 13 percent reporting only one or two injuries. Only six percent said that over-exertion injuries caused loss of productivity. Females reported only slightly more injuries than males. Supervisor responses corroborated those of incumbents.

Physical Strength and Job Performance

Over 75 percent of incumbents said they had never lacked the strength to perform their jobs, and 15 percent said they had lacked strength only 1 to 3 times in the past year. Fewer than 20 percent of male incumbents said that they had lacked strength at least once during the past year, compared to over 40 percent of female incumbents. Over 90 percent of incumbents said that lack of strength had resulted in either minimal or no impact on their performance, with over twice as many females noting this impact as males. The great majority of incumbents reported that their lack of strength had no more than minimal impact on mission readiness (90%) and others' ability to perform mission essential tasks (77%). Fewer than 2 in 5 incumbents reported that their units provided strength training. A much smaller percentage of women than men said their unit provided such training (27% to 39%). Incumbents in units providing strength training generally thought it was helpful, but those in units not providing strength training did not think it would be very helpful.

Physical Endurance and Job Performance

About 75 percent of incumbents said they had never lacked the endurance to perform their jobs, and another 15 percent lacked endurance 3 or fewer times in the past year. The great majority reported that lack of endurance had no more than minimal impact on others' ability to perform mission essential tasks. Fewer than 2 in 5 incumbents reported that their units provided

endurance training. A much smaller percentage of women than men said their unit provided the training (26% versus 39%). As with strength training, incumbents in units providing endurance training generally thought it was helpful, while those in units not providing training didn't think it would be very helpful.

Physical Fitness/Training

On average, incumbents believed that they were more physically fit than the average servicemember of their own age and gender. Male incumbents thought they were more physically fit than females, even though they were rating themselves against only those of their own age and gender. Supervisors were more realistic, rating their first-term subordinates as precisely average in fitness. More than 2 of 3 incumbents reported spending at least 1 hour in strength training, and nearly half said they spent more than 3 hours in strength training. Female incumbents spend less time in strength training than do males, but spend as much time in aerobic training as their male counterparts.

General Assessment

Incumbents believe strongly that they and their work teams have adequate strength to perform their jobs. Males were generally more confident in their strength than females, but both believed in their ability to get the job done. Nearly 2 of 3 incumbents, both male and female, thought that jobs should be reviewed and/or reengineered to make them easier to perform without reducing unit effectiveness. Nearly 80 percent of supervisors thought that they would learn of subordinates' strength problems, and nearly 75 percent thought that they would be able to improve the situation.

Conclusions and Recommendations

Conclusions

The results of the *DOD Physical Strength and Job Performance Survey* paint a positive picture regarding physical strength, physical endurance, over-exertion injuries, and physical fitness. In spite of a minority who reported problems, they were not pervasive, and they appear to have only minor effects on job performance and unit readiness. Supervisors, though somewhat less positive than incumbents, generally supported their views. While these results are encouraging, they should not invite complacency in the Services regarding physical strength or the related areas of physical endurance or over-exertion injuries. Though survey results provide support for the Service assertions that there are no serious problems with physical strength and fitness in general, it is nevertheless important that the Services remain vigilant in this regard.

Recommendations

It is recommended that the Services periodically review physical strength and job performance via a survey similar to the one reported on here. In order to reduce the burden on servicemembers and to increase response rates, emerging survey technologies should be investigated and employed. In particular, web-based survey methodologies may increase response rates and reduce the turnaround time between survey deployment and analysis and

reporting of the results. The Services are encouraged to develop valid and reliable strength and endurance tests for all jobs with at least moderate strength requirements and for jobs requiring greater than normal endurance. These tests should be based on job analyses of each occupational specialty to ensure that strength and endurance requirements are valid. Prospective candidates for these jobs should be tested to ensure that they are able to fulfill the physical requirements of the job.

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Introduction

Objective

In response to a Government Accounting Office (GAO) report entitled *Physically Demanding Jobs: Services Have Little Data on Ability of Personnel to Perform* (1996), the Department of Defense (DOD) conducted a mail survey of personnel in the Army, Navy, Air Force, and Marine Corps to determine the beliefs of first-term-of-enlistment ("first-term") personnel and supervisors regarding their ability to perform physically demanding tasks.

Within each service, 10 occupational specialties with moderate to high strength requirements were identified as the target populations for the survey by a DOD Physical Strength Working Group (PSWG) (chaired by a co-author of this report), with representation from each of the Services. The *DOD Physical Strength and Job Performance Survey*, drafted by the PSWG and finalized by the Navy Personnel Research and Development Center (NPRDC) is an optically scannable instrument consisting of about 30 items. Each respondent was mailed a package containing the survey, an endorsement letter from the Chief of Personnel for the respondent's Service, and a franked return envelope.

There were two essentially parallel survey formats, one for first-term incumbents and one for supervisors, with supervisor responses intended to confirm (or contradict) those of incumbents. Incumbents reported their own experiences regarding over-exertion injuries, physical strength, endurance, and physical fitness. Supervisors were asked analogous questions about the first-term personnel they supervised.

The initial mailing, sent to over 36,000 first-term personnel (incumbents) and to about 8,000 enlisted supervisors, yielded 9,231 responses, providing less than the target response rate for most jobs. A second mailing of about 7,500 incumbent surveys and 5,000 supervisor surveys yielded 2,068 additional responses, for a total of 11,299, of which 7,154 were incumbents, and 4,145 were supervisors. For most jobs, the two mailings achieved a confidence interval of ±7.5 percent for incumbents and ±10 percent for supervisors.

Description of the DOD Physical Strength and Job Performance Survey

The DOD Physical Strength and Job Performance Survey is an optically scannable instrument consisting of about 30 questions, or items. (The exact number of items varies depending on the branch of service and whether the survey was for incumbents or supervisors.) In order for the individual services to receive surveys with a distinct appearance, surveys for each service were printed in a representative color, and the survey title identified the individual Service rather than DOD. In addition, the mailing package for each survey contained an endorsement letter from the Chief of the servicemember's personnel command encouraging participation. The survey contains seven sections: (a) Background Information, (b) Over-Exertion Injuries, (c) Physical Strength and Performance, (d) Physical Endurance and Performance, (e) Physical Fitness/Training, (f) General Assessment, and (g) Open-ended Responses. The results of all but the final section are presented in the Results and Discussion portion of this report. The final section asked respondents to identify three tasks that require the

most strength and three tasks that require the most endurance in their jobs. The survey takes 10 to 15 minutes to complete.

Method

Survey Development

In 1996 the General Accounting Office (GAO) conducted an evaluation of physical strength and job performance. The GAO did not identify job performance problems related to physical strength, but the report noted that the Department of Defense (DOD) did not have a database that would allow an evaluation of physical strength and job performance. In response to that report, DOD established the Physical Strength Working Group (PSWG), composed of members representing the various service branches who are subject matter experts in enlisted personnel requirements. The PSWG was chaired by the Assistant Director for Enlistment Standards, Accession Policy Directorate.

The work of the PSWG was vital to the development of a physical strength survey in two very important ways. First, representatives from each of the services selected 10 occupational specialties within their Service that require moderate to heavy physical exertion to perform the required tasks. Occupational specialties were defined as (a) Army and Marine Corps military occupational specialty (MOS) codes, (b) Navy Ratings, and (c) Air Force Specialty Codes (AFSCs). Table 1 lists the selected occupational specialties by service. The second major contribution of the PSWG was to develop the draft survey to address the concerns voiced in the GAO report.

Table 1. Occupational specialties included in study.

Army (MOS)	Navy (Rating)
Infantryman (11B)	Aviation Boatswain's Mate (AB)
Armor Crewman (19K)	Aviation Ordnanceman (AO)
Radio Operator-Maintainer (31C)	Aviation Support Equipment Technician (AS)
Chemical Operations Specialist (54B)	Boatswain's Mate (BM)
Track Vehicle Mechanic (63H)	Builder (BU)
Motor Transport Operator (88M)	Damage Controlman (DC)
Medical Specialist (91B)	Electrician's Mate (EM)
Food Service Specialist (92G)	Hospital Corpsman (HM)
Unit Supply Specialist (92Y)	Hull Technician (HT)
Military Police (95B)	Torpedoman's Mate (TM)
Air Force (AFSC)	**Marine Corps (MOS)**
Tactical Aircraft Maintenance (2A3X3X)	Infantry (03XX)
Aerospace Maintenance (2A5X1X)	Logistics (04XX)
Telephone Systems (2E6X3X)	Artillery (0811)
Munitions Systems (2W0X1)	Engineer (13XX)
Aircraft Armament Systems (2W1X1X)	Subsistence Supply (3361)
Electrical (3E0X1)	Motor Vehicle Operator (3531)
Fire Protection (3E7X1)	Military Police (5811)
Security (3P0X1)	Aircraft Maintenance (60XX)
Law Enforcement (3P0X2)	Aviation Ordnance (6531)
Medical Service Technician (X4N0X1)	Firefighting & Rescue (7051)

The Navy Personnel Research and Development Center (NPRDC) was contracted to finalize survey content and format, develop the sampling plan for survey administration, manage the printing and mailing process, analyze the data, and draft the report of the survey results. DOD's Defense Management Data Center (DMDC) drew the sample for NPRDC.

Survey Overview

There were two basic survey formats, one for incumbents expected to be performing the tasks within their occupational specialty, and one for supervisors of first-term incumbents. These two survey forms were essentially parallel, with results from the supervisor surveys intended to confirm (or disconfirm) the responses from the incumbent surveys. Incumbents were asked to report their own experiences with regard to over-exertion injuries, physical strength, physical endurance, and physical fitness, and how each of these areas related to their job performance. Supervisors were asked analogous questions about the first-term personnel they supervise. The survey also solicited incumbent and supervisor opinions regarding several specific aspects of strength and job performance in a General Assessment section.

In addition to minor differences between the incumbent and supervisor surveys, the surveys for each Service differed in the following details: (a) the first question, a multiple choice, listed only the ten occupational specialties for the respondent's Service; (b) in the Army surveys, an item in the Background Information section asked for the respondent's unit type; and (c) surveys were uniquely color-shaded for each Service. Examples of each survey appear in Appendix A.

Sample Characteristics

The sampling plan called for surveying 1,000 incumbents and 200 supervisors from each occupational specialty, for a total of 40,000 incumbents and 8,000 supervisors. In drawing the sample, it was discovered that some occupations had fewer than 1,000 incumbents or 200 supervisors. As a result, the total initial sample size was 44,250, consisting of 36,361 incumbents and 7,889 supervisors.

The sample criteria were selected to ensure the most representative sample possible. Servicemembers were required to have been in their occupational specialties for at least one year and to be assigned to a unit in which they would be working in their specialty. Incumbents were therefore required to have a pay grade of E-4 and below.

Supervisors were required to be beyond their first term of enlistment to ensure adequate experience and to avoid possible overlap between incumbent and supervisor samples. In addition, the supervisor sample was constrained by pay grade to maximize the probability that they would be supervising personnel meeting the selection criteria in the incumbent sample, i.e., that they would be first-line supervisors.

Interviews with experts from the various Services confirmed that the pay grade at which personnel are likely to be first-line supervisors varies by Service. The Army specified that E-6s and E-7s, as well as E-5s with at least one year in grade be included in the supervisor sample. The Navy specified that only E-6s and E-7s be included. The Marine Corps and Air Force requested the inclusion of all E-5s, E-6s, and E-7s. The experts indicated that those below the specified pay grade were unlikely to be in a supervisory position, and that E-8s and E-9s in all Services were more likely to be second-level supervisors rather than first-line supervisors.

As stated above, in order to constrain the sample to personnel working in their occupational specialties, a delimiter was used to restrict the sample to servicemembers assigned to a unit utilizing their occupational specialties. In spite of this constraint, however, personnel attached to these units could still be assigned work outside their specialties as the needs of the unit dictate. Further, the delimiter also includes personnel assigned to training units, where they are *receiving training* in their specialties, but not *working* in their specialties. Because there was no alternative means in the DMDC database to identify whether servicemembers are actually working in their specialty, the delimiter variable was used in selecting the sample.

Survey Mailing

Surveys were mailed to individuals in each of the services using the sample selected by DMDC. Each addressee received a 9" by 12" envelope containing (a) the survey, (b) a franked return envelope addressed to NPRDC, and (c) an endorsement letter from the Chief of the addressee's personnel command requesting servicemember participation. Because of the large number of surveys, they were mailed in waves by service and by incumbent/supervisor, with the entire incumbent mailing requiring 2 weeks and the supervisor mailing requiring another week. The nominal period for personnel to return the surveys was 10 weeks, and a reminder card was sent about midway through this time period.

Survey Response Rates

The sample size was selected to yield a ±5 percent confidence interval for incumbents and a ±10 percent confidence interval for supervisors (using a .05 level of statistical significance). To achieve these confidence intervals, raw return rates (return rates without subtracting "return to sender" [RTS] surveys) of 30–35 percent for incumbents and 40–45 percent for supervisors were required. A discussion of the computation of sample sizes and confidence intervals (White & Cooper, 1991) is included in Appendix B. For most occupational specialties, response rates from the initial mailing failed to achieve the desired levels. Overall, the raw incumbent return rate was 17.7 percent, and after subtracting RTS surveys, the adjusted return rate was 19.9 percent. Overall supervisor raw and adjusted return rates were 35.5 percent and 39.3 percent, respectively.

There are several possible reasons for the low return rate. First, return rates for personnel in pay grades E-3 and below are typically low, usually in the 15 percent range. Second, it appears that a large percentage of first-term personnel are in a training status, often being assigned sequentially to various schools and training units for short periods of time. Because the DMDC database is not updated on a continual basis, mailing addresses for these personnel can be three or more months out of date, and forwarding is unreliable and untimely. Results of the first mailing are shown by Service and occupational specialty in Appendix C, Tables C-1a through C-1d.

The low survey return rate presented two alternatives. First, the return rate could be accepted, with analyses performed on the existing data. The advantage of this approach would have been to view the results soon after the survey was conducted. The accompanying disadvantage would have been reduced confidence in the results because of the low return rates. For some incumbent jobs, the return rates were so low that confidence intervals were nearly double the target interval, and confidence intervals for many supervisor job categories were close to ±15 percent.

The second alternative was to draw another sample and conduct a new mailing. This alternative was attractive because it would narrow the confidence interval, thereby increasing trust in the results. Despite the resultant delay and increased costs, the sponsor decided to conduct a second mailing.

Second Sample

It was assumed that survey response rates for the second mailing would be similar to initial response rates. It was thus evident that the ±5 percent confidence interval for incumbents could not be achieved, especially in the smaller occupational specialties, because most or all of the servicemembers in those jobs had been surveyed in the initial sample. In addition, even if the ±5 percent confidence interval could be achieved in the larger occupational specialties, it would be prohibitively costly because of the large number of people who would have to be surveyed. As a compromise, the target confidence interval was relaxed to ±7.5 percent for incumbents but retained at ±10 percent for supervisors.

With the revised target confidence interval, additional incumbent sampling was required for 21 of the 40 occupational specialties in the study. Although the supervisors as a whole were closer to the desired confidence interval than were the incumbents, there were only 4 of the 40 occupational specialties for which the ±10 percent goal had actually been achieved.

In drawing the second sample, a problem for some specialties was that the entire available population had been drawn for the first sample. Sampling would have to be conducted without replacement (i.e., those available for selection into the first sample could not be selected for the second sample), because there were no identifiers on the survey to determine who from the first sample had actually responded. Therefore, only names added to the population after drawing the first sample could be used in the second sample. These personnel included (a) those newly promoted to the appropriate grade level or achieving the required time in grade, (b) individuals who reached one year working in their occupational specialty, and (c) personnel newly transferred to a unit in which they could work in their occupational specialty. To increase the probability that the desired confidence interval would be reached, a 15 percent safety margin was added to the computed sample size. The result was a second mailing of 7,506 incumbent surveys and 5,065 supervisor surveys. Computations of sample sizes for the second mailing are shown by Service and occupational specialty in Appendix C, Tables C-2a through C-2d.

As with the first mailing, surveys were scheduled to be in the field for approximately 10 weeks, with a reminder postcard mailed near the midpoint of that period. Given the likely response rates, the small populations of some jobs would effectively prevent achieving the target confidence interval, so those occupation populations were sampled at 100 percent to achieve maximum coverage. For the jobs with larger populations, and based on the computed sample size plus the 15 percent safety margin, the second mailing should have achieved the target confidence interval with ease. However, two survey outcomes reduced the number of second-mailing surveys returned. First, the RTS rate was almost twice as high as for the first mailing (20.2% vs. 11.0%). Second, survey completion (return) rates for the second mailing were lower than they were for the first mailing. Comparison of first- and second-mailing return rates for incumbents and supervisors is shown in Table 2, along with the total return rates. Second mailing return rates by occupational specialty are shown in Appendix C, Tables C-3a through C-3d.

Table 2. Raw and adjusted response rates by mailing (response rates before and after adjustment for surveys "Returned to Sender")

Incumbents						
Mailing	Sample Size	Return to Sender	Delivered	Returned	Raw Return Rate (%)	Adj. Return Rate (%)
1st	36,361	3,991	32,370	6,431	17.7	19.9
2nd	7,506	1,519	5,987	723	9.6	12.1
Total	43,867	5,510	38,357	7,154	16.3	18.7
Supervisors						
Mailing	Sample Size	Return to Sender	Delivered	Returned	Raw Return Rate (%)	Adj. Return Rate (%)
1st Mailing	7,889	759	7,130	2,800	35.5	39.3
2nd Mailing	5,065	515	4,550	1,345	26.6	29.6
Total	12,954	1,274	11,680	4,145	32.0	35.5

Survey Respondents

A total of 11,299 individuals completed and returned the surveys. The initial mailing yielded 9,231 responses, which provided less than the target response rate for many jobs. The second mailing yielded 2,068 additional responses. Of the 11,299 responses, 7,154 were incumbents, and 4,145 were supervisors. For most jobs, the second mailing achieved a target confidence interval of ±7.5 percent for incumbents and ±10 percent for supervisors.

Raw response rates by pay grade are shown in Table 3. These response rates make several assumptions. First, because the surveys were anonymous, undeliverable (RTS) surveys were identifiable only within Service branch and by incumbent or supervisor. They were not traceable by pay grade, gender, or occupational specialty, so RTS percentages were apportioned to these categories on a pro rata basis. This apportionment can be seen in Appendix C, Figures C-1a–d and C-3a–d. As a result of the temporary nature of the billet assignments of junior personnel, particularly E-1s through E-3s, pro rata apportionment probably overestimates the percentage of these personnel who received surveys, thus underestimating their adjusted return rate.

Table 3. Raw response rates by paygrade

Incumbents				Supervisors			
Paygrade	Sample	Returns	Rate(%)	Paygrade	Sample	Returns	Rate(%)
E-1	3,585	61	1.6	E-5	4,902	1,200	24.5
E-2	8,597	759	8.8	E-6	5,210	1,744	33.5
E-3	17,351	2,985	17.2	E-7	2,836	1,147	40.4
E-4	14,334	3,159	22.0				
Missing/other		190		Missing/other		54	
Total	43,867	7,154	16.3	Total	12,948	4,145	32.0

Another factor almost certainly caused underestimation of the E-1 return rate. Because databases for both mailings were 3–4 months old, a sizable percentage of E-1s in the sample should have been advanced to E-2 by the time they filled out the survey. Although a few personnel may have been demoted to E-1, this number is typically small. The E-1 response rate is thus reduced by the net number of advancements, because there is no way to replace these people in a sample that is already drawn. A similar situation would occur among supervisor E-5s, although to a lesser extent because of the slower advancement rate. For pay grades other than E-1 (incumbents) and E-5 (supervisors), advancements should have minimal impact on the paygrade percentages of sampled personnel, because advancement to the next higher pay grade should roughly be replaced by advancement from below.

Clearly observable from Table 3 is that response rates were successively higher for each higher paygrade. As just discussed, the extremely low response rate for E-1s has a number of probable causes, and for E-2s and E-3s, the temporary nature of training assignments was probably instrumental in reducing their response rates as well. Among supervisors, E-5 return rates were probably reduced to some extent by the advancement of some addressees to E-6

Raw response rates by gender are shown in Table 4. Among incumbents, the female response rate is slightly higher than that of males. On the other hand, the male response rate among supervisors is slightly higher than the female response rate. Note in the "Missing" line, however,

that a number of respondents among both the incumbents and supervisors did not identify their gender.

Table 4. Raw response rates by gender

Incumbents				Supervisors			
Gender	Sample	Returns	Rate(%)	Gender	Sample	Returns	Rate(%)
Male	37,974	5,990	15.8	Male	11,928	3,818	32.0
Female	5,893	1,121	19.0	Female	1,020	301	29.5
Missing		43		Missing		26	
Total	43,867	7,154	16.3	Total	12,948	4,145	32.0

Results and Discussion

Based on the responses received from incumbents and supervisors, preliminary analyses were performed to determine if there were systematic differences in data from the first and second samples. Although these analyses found that the second-sample paygrade mix was more junior for many incumbent jobs, this difference did not affect conclusions drawn from the study. In fact, because of the overall low response rates of E-1s and E-2s, higher proportions of these paygrades in the second sample actually result in a more representative sample, thus enhancing the validity of study findings. Further, statistically controlling for paygrade differences between the first and second samples resulted in no more than a chance number of differences on the remaining survey items. Because survey results by paygrade were not of primary theoretical interest in this study, these results are not reported and the two samples (first and second mailing) were combined.

Incumbent and supervisor responses are presented separately rather than combined, because the purpose of obtaining supervisor input in the study was to compare and contrast their responses with those of the incumbents. In addition to incumbent-supervisor differences, male-female differences for incumbents and supervisors are of primary interest and are also reported. Finally, analyses of special interest will be reported. Survey results and discussion will be presented in the order that the survey items appear in the surveys.

There are minor differences in item wording between incumbent-supervisor surveys and among the surveys of the different Service branches. Where these differences occur, the alternate wordings of the item are shown, separated by a slash. If the wording of a survey item is unclear presented in this manner, you may refer the exact wording of the item in Appendix A.

In order to aid comprehension, the results and discussion are presented together. The major headings that follow refer to the sections of the survey.

Background Information

The first section of the survey obtained personal and work-related demographic data, as well as data relating to retraining as a result of strength problems. The items were as follows:

What is your Military Occupational Specialty (MOS)/Rating/Air Force Specialty Code (AFSC)? For each Service, respondents were asked to choose from a list of 10 occupational

Responses and response rates by occupational category can be seen in detail in Appendix C, Tables C-1a through C-1d and C-3a through C-3d, including population sizes, sample sizes, and response rates.

What is your paygrade? Paygrades of incumbent respondents are shown in Table 5. The majority of incumbent respondents were E-3s and E-4s. There was an extremely small percentage of E-1 responses. Although E-1s were over eight percent of the incumbent population (see Table 2), their responses were less than one percent of that total. As stated in the Method section, E-1s were probably under-represented both because of their transient or training status, and because many were likely to have been advanced in grade between the date the database was developed and the time the surveys were mailed. The E-5s shown are most likely personnel who were advanced in paygrade between the time the database was developed and respondents were surveyed. Women represented slightly over 15 percent of the incumbent sample.

Table 5. Incumbent responses by paygrade

	Incumbents					
	Males		Females		Total	
Response	Frequency	Percent	Frequency	Percent	Frequency	Percent
E-1	53	0.9	8	0.7	61	0.9
E-2	632	10.6	125	11.2	759	10.6
E-3	2,478	41.4	495	44.2	2,985	41.7
E-4	2,657	44.4	479	42.7	3,159	44.2
E-5 or above	169	2.8	13	1.2	182	2.5
Missing	1	0.0	1	0.1	8	0.1
Total	5,990	100.0	1,121	100.0	7,154	100.0

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Among supervisors, shown in Table 6, E-6s were the most numerous respondents, but all pay grades were well represented. The E-8s shown may have been advanced in paygrade between the time the database was developed and respondents were surveyed. Women represent a smaller percentage of supervisors than of incumbents, comprising only about seven percent of all supervisors in the sample.

Table 6. Supervisor responses by paygrade

	Supervisors					
	Males		Females		Total	
Response	Frequency	Percent	Frequency	Percent	Frequency	Percent
E-5 or below	1,105	28.9	91	57.8	1,200	29.0
E-6	1,615	42.3	120	25.9	1,744	42.1
E-7	1,056	27.7	86	7.6	1,147	27.7
E-8 or E-9	41	1.0	4	3.0	45	1.1
Missing	1	0.0	0	4.7	9	0.2
Total	3,818	100.0	301	100.0	4,145	100.0

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

What is your gender? Return rates by gender are shown in Table 7. Males outnumber females by about 5 to 1 among incumbents, and by more than 12 to 1 among supervisors. As stated in the previous item, the relatively recent availability of many jobs to women explains their small number in the supervisor ranks. As more women are recruited and advanced in paygrade, it is reasonable to expect that the disparity in numbers between men and women will continue to decrease, in both the incumbent and supervisor ranks.

Table 7. Responses by gender

Incumbents			Supervisors		
Response	Frequency	Percent	Response	Frequency	Percent
Male	5,990	83.7	Male	3,818	92.1
Female	1,121	15.7	Female	301	7.3
Missing	43	0.6	Missing	26	0.6
Total	7,154	100.0	Total	4,145	100.0

What type of UNIT are you assigned to? (Army only). Only the Army surveys included an item that determined whether respondents were in a unit with (a) a wartime mission or (b) a primarily peacetime mission. Incumbent results are shown in Table 8. Overall, slightly fewer than half of the Army incumbents reported that they were in a unit with a wartime mission. However, nearly 1 in 5 indicated that they didn't know what type of unit they were in. Of those who did know, 63 percent said they were in a unit with a wartime mission. Nearly twice as many male incumbents reported being in units with a wartime mission as did those reporting being in a peacetime unit, with about 1 in 6 reporting that they weren't sure of their unit type. Female incumbents reported about equal assignment to wartime and peacetime units, with about 1 in 4 stating that they didn't know their unit type. The prohibition of women from some MOSs with a direct combat role undoubtedly reduced their proportions in wartime units.

Table 8. Incumbent responses by unit type (Army only)

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Wartime mission	637	52.9	132	35.3	774	48.7
2	Peacetime mission	326	27.1	125	33.4	455	28.6
	Do not know	198	16.4	95	25.4	293	18.4
	Missing	43	3.6	22	5.9	67	4.2
	Total	1,204	100.0	374	100.0	1,589	100.0
		Mean	Std. Error	Mean	Std.	Mean	Std.
	Mean & Std. Error	1.34	0.02	1.49	0.03	1.37	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Results for Army supervisors are shown in Table 9. About the same proportion of supervisors reported that they were in a wartime unit (64%) as incumbents, although this equivalency is obscured by the smaller percentage of supervisors who responded either "Do not know" or left the item blank. In spite of the prohibition of women from some MOSs with a

combat role, female supervisors were nearly as highly represented in units with a wartime mission as male supervisors.

Table 9. Supervisor responses by unit type (Army only)

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Wartime mission	680	62.5	89	58.6	771	62.0
2	Peacetime mission	382	35.1	57	37.5	440	35.4
	Do not know	10	0.9	3	2.0	13	1.0
	Missing	16	1.5	3	2.0	20	1.6
	Total	1,088	100.0	152	100.0	1,244	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean & Std. Error	1.36	0.01	1.39	0.04	1.36	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

How long have you been in your current MOS/Rating/AFSC? As can be seen in Table 10, well over 90 percent of incumbents, both male and female, reported that they had been in their current occupational specialty less than 4 years. This result is expected because most initial enlistments are four years or less. The times in occupational specialty reported by male and female incumbents were essentially the same.

Among supervisors, shown in Table 11, nearly 4 in 5 reported being in their occupational specialty at least 8 years, and the majority said they had been in their specialty 12 or more years. More than 1 in 4 said they had been in their specialty at least 16 years. There was essentially no difference in times reported by male and female supervisors.

Table 10. Incumbent time in current occupational specialty

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Less than 4 years	5,451	91.0	1,045	93.2	6,532	91.3
2	4-8 years	492	8.2	72	6.4	565	7.9
	Missing/other	47	0.8	4	0.4	57	0.8
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
	Mean & Std. Error	1.08	0.004	1.06	0.01	1.08	0.003

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 11. Supervisor time in current occupational specialty

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Less than 4 years	267	7.0	22	7.3	290	7.0
2	4-8 years	509	13.3	46	15.3	559	13.5
3	8 12 years	882	23.1	68	22.6	952	23.0
4	12-16 years	1,133	29.7	79	26.2	1,219	29.4
5	16 or more years	1,017	26.6	85	28.2	1,107	26.7
	Missing	10	0.3	1	0.3	18	0.4
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std. Error	Mean	Std.	Mean	Std.
	Mean & Std. Error	3.56	0.02	3.53	0.07	3.56	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Have you changed your MOS/Rating/AFSC due to difficulty in meeting the strength demands of your work? (Incumbents only). Only 36 incumbents, 0.5 percent of those responding, reported having changed their occupational specialty. For those who responded affirmatively, a derivative item asked how long the respondent had been in the new specialty in 3-month increments, up to 12 months. No single increment predominated. Because of the small number of individuals responding positively to these items, no meaningful analyses can be performed beyond noting the specialties of the respondents reported having changed. Overall, respondents in 22 occupational specialties reported having changed their MOS/Rating/AFSC, of which 9 specialties had more than 1 respondent. This information is shown in Appendix D, Table D-1. Note that the data in this table indicate only respondents who changed from other jobs to those surveyed in this study. Information on those who changed *from* this study's MOSs/Ratings/AFSCs *to* others is not available.

How many first-term of enlistment personnel do you typically supervise at a time? (Supervisors only) Responses to this item are shown in Table 12. More supervisors reported supervising between one and four first-term subordinates than any other response option. The next most frequent response, however, was supervision of more than 12 first-term personnel. Male supervisors reported supervising slightly higher numbers of first-term subordinates than did females. In general, the results indicate a broad range of numbers of personnel supervised.

Table 12. First-term subordinates supervised

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	None	488	12.8	58	19.3	548	13.2
2	1-4	1,389	36.4	128	42.5	1,524	36.8
3	5-8	713	18.7	55	18.3	771	18.6
4		368	9.6	16	5.3	385	9.3
5	More than 12	841	22.0	43	14.3	889	21.4
	Missing	19	0.5	1	0.3	28	0.7
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean & Std. Error	2.92	0.02	2.53	0.07	2.89	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

The results also indicate that 548 "supervisors" said they didn't supervise *any* first-term personnel. And yet, of the remaining survey items, typically only about 125 to 200 supervisor respondents left the items blank. Therefore, at a minimum, 300–400 supervisor responses (slightly under 10%) are from those who indicated that they didn't supervise anyone at the time of the survey. It is assumed that their responses were based on prior experience in supervising first-term personnel and/or observations of personnel they didn't supervise.

During the past 12 months, has difficulty in meeting strength requirements caused your first-term subordinates to retrain or consider retraining (i.e., change MOS/Rating/AFSC)? (Supervisors only). Table 13 shows the responses to this item. Nearly 2 of 3 supervisors stated that difficulties with job strength requirements had not induced any first-term subordinates to retrain or consider retraining for another occupational specialty. Yet 1 in 3 supervisors reported that at least 1 first-term subordinate *did* either retrain or consider retraining. The majority of those who indicated subordinates retrained or considering retraining indicated only one or two individuals. There was essentially no difference between male and female supervisor responses.

Table 13. Supervisor reports of the effect of first-term subordinates' difficulty in meeting strength requirements on their retraining or considering retraining in past 12 months

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequenc	Percent
1	No impact on retraining	2,430	63.6	207	68.8	2,645	63.8
2	1 to 2 people retrained	754	19.7	55	18.3	817	19.7
3	3 to 4 people retrained	336	8.8	17	5.6	354	8.5
4	5 to 6 people retrained	77	2.0	2	0.7	79	1.9
5	More than 6 people retrained	127	3.3	12	4.0	140	3.4
	Missing	94	2.5	8	2.7	110	2.7
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std .Error	Mean 1.58	S.E. 0.02	Mean 1.49	S.E. 0.06	Mean 1.58	S.E. 0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Over-Exertion Injuries

This section asked about over-exertion injuries and their effects on coworkers. At the beginning of the section, "over-exertion injury" was defined as "a physical injury that may or may not require medical attention that resulted because an individual did not have the physical strength to perform a work-related task." The items in this section were as follows:

During the past 12 months, how often have you/your first-term subordinates been unable to perform the full range of your/their duties because of a work-related over-exertion injury? Frequencies of incumbent over-exertion injuries are shown in Table 14. Nearly 80 percent of incumbents said they had not been hampered at work in the past year by an over-exertion injury, and only 7 percent said that over-exertion injuries had hindered their performance more than once or twice. Females reported a slightly higher incidence of injuries than males.[1]

[1]Because of differing proportions of male and female incumbents in the various occupational specialties, it was possible that these differences might explain the disparity in their responses regarding work-related over-exertion injuries. A moderated regression analysis was performed to determine whether occupational specialty could explain the relationship between sex and number of injuries. For each occupational specialty in the study, a categorical ("dummy") variable was created. Every dummy variable satisfying the regression equation criteria ($p < .05$ to enter) was allowed to enter the equation, followed by the gender variable. Thus, occupational specialty did not explain the male-female differences in over-exertion injuries. Even after 19 occupational specialties entered the equation, the gender variable entered the equation significantly.

Table 14. Incumbent reports of the number of times in the past 12 months they were unable to perform duties due to a work-related over-exertion injury

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Never	4,793	80.0	841	75.0	5,659	79.1
2	1 or 2 times	764	12.8	163	14.5	935	13.1
3	3 to 5 times	233	3.9	57	5.1	290	4.1
4	6 to 12 times	54	0.9	18	1.6	74	1.0
5	More than 12 times	104	1.7	30	2.7	135	1.9
	Missing	42	0.7	12	1.1	61	0.9
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean & Std. Error	1.30	0.01	1.41	0.03	1.32	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Among supervisors, slightly over half stated over-exertion injuries had not been a problem for the first-term subordinates they supervise, as shown in Table 15. Although the supervisors responded less positively than incumbents, the question asked that supervisors respond for *all* of their first-term subordinates, while incumbents reported only their own experience. Male supervisors reported slightly higher injury rates among their subordinates than female supervisors. However, analysis indicated that the difference was because male supervisors, on average, supervise a greater number of subordinates than female supervisors.[2]

[2] A moderated regression analysis was performed to determine whether the number of first-term incumbents supervised could explain the relationship between sex and number of injuries. Number of first-term personnel supervised was entered first, followed by the gender variable. After entry of first-term personnel supervised, gender did not enter the regression significantly. Thus, the analysis determined that the number of first-term personnel supervised did explain the male-female supervisor differences in subordinate over-exertion injuries. This method was used for all following analyses to determine whether the number of personnel supervised could explain reporting differences by gender.

Table 15. Supervisor reports of the number of times in the past 12 months their first-term subordinates were unable to perform duties due to a work-related over-exertion injury

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Never	2,022	53.0	174	57.8	2,205	53.2
2	1 or 2 times	1,064	27.9	78	25.9	1,148	27.7
3	3 to 5 times	415	10.9	23	7.6	441	10.6
4	6 to 12 times	125	3.3	9	3.0	134	3.2
5	More than 12 times	104	2.7	3	1.0	107	2.6
	Missing	88	2.3	14	4.7	110	2.7
	Total	3,818	100.0	301	100.0	4,145	100.0
	Item Mean & Std.	Mean	Std.	Mean	Std.	Mean	Std.
		1.72	0.02	1.57	0.05	1.71	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

During the past 12 months, what effect has over-exertion (of your first-term subordinates) had on work-related injuries and/or safety problems? As Table 16 shows, about 3 of 5 incumbents indicated that over-exertion had not been a problem for them, and another 1 of 5 said that over-exertion had not caused injuries and/or safety problems. Thus, over 80 percent of incumbents reported no problems due to over-exertion. When this total is added to those reporting only minor injuries and/or safety problems, well over 90 percent of incumbents indicated that over-exertion injuries have no negative impact on people, equipment, or resources. In all, only about six percent of those responding indicated lost productivity due to over-exertion injuries. Male and female incumbents did not differ statistically in their reports of the effects of over-exertion on injuries and safety problems.

Reporting for all their first-term subordinates, supervisors indicated greater effects of overexertion on injuries than did incumbents, as shown in Table 17. About 3 out of 5 reported that over-exertion had either not been a problem or had not resulted in work-related injuries or safety problems. Only about 13 percent indicated that injuries due to over-exertion had caused a loss of labor hours, and only 3 percent said that productivity losses had exceeded 8 hours. Male supervisors reported a slightly greater number of problems due to over-exertion than female supervisors, but analysis again indicated that the difference could be explained by the fact that males reported supervising a greater number of subordinates than did females.

During the past 12 months, how much additional work were you or your co-workers/your first-term subordinates expected to perform because another co-worker/one of their co-workers experienced an over-exertion injury? As Table 18 shows, over 3 out of 5 incumbents reported either that this item was "not applicable" or that "no additional work" had to be performed due to others' over-exertion injuries. Another 17 percent reported that others' injuries resulted in less than 8 hours extra work during the past year. In all, fewer than 1 in 5 reported having to perform over 8 hours of extra work due to a co-worker's over-exertion injuries. Male incumbents reported having to perform more hours of extra work than female incumbents.

Table 16. Incumbent reports of the effect of their over-exertion on work-related injuries and/or safety problems during the past 12 months

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Over-exertion has not been a problem for me on the job	3,691	61.6	647	57.7	4,357	60.9
2	I have sometimes had to over-exert, but it did not result in work-related injuries and/or safety problems	1,221	20.4	261	23.3	1,492	20.9
3	I have had minor injuries and/or safety problems (no negative impact to people, equipment, or resources) due to my over-exertion	671	11.2	124	11.1	799	11.2
4	I have had work-related injuries and/or safety problems (resulting in 8 labor hours or less of lost productivity) due to my over-exertion	190	3.2	36	3.2	226	3.2
5	I have had major work-related injuries and/or safety problems have occurred (resulting in more than 8 labor hours of lost productivity) due to my over-exertion	163	2.7	39	3.5	206	2.9
	Missing	54	0.9	14	1.2	74	1.0
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 1.64	Std. 0.01	Mean 1.70	Std. 0.03	Mean 1.65	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 17. Supervisor reports of the effect of over-exertion by first-term subordinates on work-related injuries and/or safety problems during the past 12 months

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Over-exertion has not been a problem on the job	1,749	45.8	160	53.2	1,920	46.3
2	Some over-exertion noted, but no work-related injuries and/or safety problems	845	22.1	50	16.6	898	21.7
3	Minor injuries and/or safety problems (no negative impact to people, equipment or resources) due to over-exertion	595	15.6	48	15.9	645	15.6
4	Injuries and/or safety problems have occurred (resulting in 8 labor hours or less of lost productivity) due to over-exertion	388	10.2	26	8.6	415	10.0
5	Major injuries and/or safety problems have occurred (resulting in more than 8 labor hours of lost productivity) due to over-exertion	131	3.4	3	1.0	135	3.3
	Missing	110	2.9	14	4.7	132	3.2
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 2.00	Std. 0.02	Mean 1.82	Std. 0.06	Mean 1.99	Std. 0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 18. Incumbent reports of additional work required of them in the past 12 months due to a co-worker's over-exertion injury

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not applicable	1,912	31.9	428	38.2	2,348	32.8
2	No additional work	1,811	30.2	328	29.3	2,152	30.1
3	Less than 8 hours	1,019	17.0	179	16.0	1,204	16.8
4	8-16 hours	592	9.9	90	8.0	686	9.6
5	17-40 hours	258	4.3	36	3.2	296	4.1
	More than 40 hours	341	5.7	47	4.2	392	5.5
	Missing	57	1.0	13	1.2	76	1.1
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean & Std. Error	2.41	0.02	2.20	0.04	2.38	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

As shown in Table 19, supervisor reports of their first-term subordinates' need to perform additional work due to co-workers' over-exertion injuries were similar to incumbent reports, actually reporting somewhat less additional work than incumbents. Overall, almost 2 of 3 supervisors reported that this problem was either not applicable or did not result in additional work. Fewer than 1 in 6 supervisors indicated that over-exertion injuries caused their subordinates to perform 8 or more hours of additional work. Male and female supervisors provided differing reports of the amount of additional work their subordinates were required to perform due to co-workers' over-exertion injuries. Once again, however, analysis determined that the difference could be explained by the fact that male supervisors, on average, reported responsibility for greater numbers of subordinates than did female supervisors.

Table 19. Supervisor reports of additional work required of first-term incumbents in the past 12 months due to a co-worker's over-exertion injury

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not applicable	1,503	39.4	139	46.2	1,647	39.7
2	No additional work	951	24.9	67	22.3	1,025	24.7
3	Less than 8 hours	668	17.5	47	15.6	718	17.3
4	8-16 hours	353	9.2	23	7.6	378	9.1
5	17-40 hours	138	3.6	5	1.7	143	3.4
	More than 40 hours	111	2.9	7	2.3	118	2.8
	Missing	94	2.5	13	4.3	116	2.8
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean & Std. Error	2.20	0.02	1.99	0.07	2.18	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Physical Strength and Job Performance

This section of the survey asked about the impact of lack of strength on individual performance and mission readiness, whether the respondent's unit provided job-related strength training, and how useful the training was. The following items were included in this section:

How many times in the past 12 months did you/your first-term subordinates lack the physical strength to complete a task (e.g., were physically unable to lift an object), typically not performed as a team task, while working in the job? As shown in Table 20, more than 3 out of 4 incumbents stated that they had never lacked the strength to perform their work, and another 15 percent said they had lacked strength only 1 to 3 times. These two response categories represent over 90 percent of all incumbent respondents, indicating that lack of strength is not a pervasive problem. Male incumbents were much less likely than females to indicate that lack of strength had ever caused them problems in performing their job. Fewer than 1 in 5 men, as compared with more than 2 in 5 women said they had ever lacked the strength to complete a task. About three times as many women as men indicated that they had lacked strength for each response category of greater than three occurrences.

Table 20. Incumbent reports of the number of times in the past 12 months they lacked the physical strength to complete a task, while performing their job

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Never	4,877	81.4	660	58.9	5,565	77.8
2	1-3 times	791	13.2	290	25.9	1,087	15.2
3	4-10 times	158	2.6	83	7.4	242	3.4
4	11-20 times	46	0.8	31	2.8	78	1.1
5	More than 20 times	94	1.6	50	4.5	145	2.0
	Missing	24	0.4	7	0.6	37	0.5
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean & Std. Error	Mean 1.27	Std. 0.01	Mean 1.67	Std. 0.03	Mean 1.34	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

As shown in Table 21, nearly 3 out of 5 of all supervisors indicated that their subordinates had never lacked the strength to complete a task on the job. Although this rate was higher than that reported by incumbents, supervisor responses were for all first-term subordinates they supervise, which could be as many as 20 or more personnel. Fewer than 1 in 8 supervisors said that lack of strength had prevented their subordinates from completing a task more than three times in the previous year. Female supervisors reported a somewhat lower incidence of subordinate strength problems than male supervisors, but when adjusted by the number of first-term personnel supervised, this difference between male and female supervisors disappears.

During the past 12 months, what impact has lack of physical strength (of your first-term subordinates) had on your/their ability to perform (your) work tasks? Over 70 percent of incumbents said that lack of physical strength had no impact on their ability to perform their

work, and nearly 20 percent more said that the impact of lack of strength was minimal, as Table 22 indicates. Thus, 9 out of 10 incumbent respondents said that lack of strength had little or no impact on the work they perform. Only about two percent of respondents said that lack of strength was either a significant or major problem. Female incumbents were nearly twice as likely as males to report at least some impact of lack of strength on their ability to perform their work, and more than twice as likely to report a significant or major impact on task performance. Nevertheless, nearly 5 out of 6 female incumbents indicated that lack of strength had either no impact or minimal impact on their ability to perform work tasks, and fewer than 1 in 20 reported that lack of strength had a significant or major impact on their performance.

Table 21. Supervisor reports of the number of times in the past 12 months first-term subordinates lacked the physical strength to complete a task, while performing their job

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Never	2,193	57.4	190	63.1	2,393	57.7
2	1-3 times	1,070	28.0	69	22.9	1,146	27.6
3	4-10 times	299	7.8	19	6.3	318	7.7
4	11-20 times	75	2.0	8	2.7	84	2.0
5	More than 20 times	77	2.0	1	0.3	78	1.9
	Missing	104	2.7	14	4.7	126	3.0
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean & Std. Error	1.59	0.01	1.47	0.04	1.58	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 22. Incumbent reports of the impact of lack of physical strength on their ability to perform work tasks during the past 12 months

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No impact; my physical strength has been sufficient to perform all tasks	4,480	74.8	600	53.5	5,106	71.4
2	Minimal impact; I perform almost all tasks without difficulty	1,024	17.1	318	28.4	1,350	18.9
3	Some impact; I perform most tasks without difficulty	359	6.0	144	12.8	506	7.1
4	Significant impact; I have difficulty performing many tasks	73	1.2	44	3.9	117	1.6
5	Major impact; I have difficulty performing most tasks	36	0.6	9	0.8	45	0.6
	Missing	18	0.3	6	0.5	30	0.4
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 1.35	Std. 0.01	Mean 1.69	Std. 0.03	Mean 1.41	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

As seen in Table 23, about half of all supervisors, reporting for all of their first-term subordinates, said that lack of strength was no problem, and another 1 in 4 said that it was only a minimal problem. Only 1 in 20 supervisors thought that lack of strength was either a significant or major hindrance to work performance. Slightly over half of male supervisors reported at least minimal impact of lack of strength on the ability of subordinates to perform their work tasks. Conversely, slightly less than half of female supervisors reported at least minimal impact. However, analysis indicates that, when adjusted by the number of personnel supervised, the difference in impact of lack of physical strength on task performance disappears.

Table 23. Supervisor reports of the impact of lack of physical strength on first-term subordinate ability to perform work tasks during the past 12 months

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No impact; their physical strength has been sufficient to perform all tasks	1,858	48.7	160	53.2	2,029	49.0
2	Minimal impact; they perform almost all tasks without difficulty	894	23.4	69	22.9	967	23.3
3	Some impact; they perform most tasks without difficulty	769	20.1	49	16.3	819	19.8
4	Significant impact; they have difficulty performing many tasks	158	4.1	7	2.3	166	4.0
5	Major impact; they have difficulty performing most tasks	35	0.9	2	.7	38	0.9
	Missing	104	2.7	14	4.7	126	3.0
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 1.82	Std. 0.02	Mean 1.68	Std. 0.05	Mean 1.81	Std. 0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

What generally happened if you/your first-term subordinates lacked the strength to perform a physically demanding individual (not team) task? Incumbent responses to this item are shown in Table 24. It should be noted that while the first response option for this item is similar to the first option for the previous two items (for incumbents, refer to Tables 20 and 22), the current item allows respondents to indicate solutions to strength deficiencies without admitting failure, as implied by the previous two items. This may have resulted in fewer individuals selecting the first option on this item.

The response options for this item must be analyzed differently because they are not points along a continuum as are most items in this survey. As a result, mean and standard error computations for the overall item would not be meaningful.[3] Incumbent data for the response options are shown in Tables 24a through 24f.

[3]The response options for this item are *categorical* (i.e., they are qualitatively different without any necessary ordering or quantity), while the response options for most items in this survey are at least *ordinal* or *interval* (the response options are ordered, and for analysis purposes, are considered to be equidistant from one another on a continuum). Therefore, response options are analyzed separately, with those choosing a particular option compared with those choosing any other option. Each response option, then, is converted to a "yes/no" or "this/other" item.

Table 24. Incumbent reports of what occurred when they lacked the strength to perform a physically demanding individual (not team) task

	Incumbents					
	Males		Females		Total	
Response	Frequency	Percent	Frequency	Percent	Frequency	Percent
Not applicable; I have always had the strength to perform my physically demanding tasks	4,146	69.2	517	46.1	4,686	65.5
The task was not done	51	0.9	6	0.5	57	0.8
I got someone else to complete the task	146	2.4	94	8.4	241	3.4
My supervisor assigned the task to someone else	136	2.3	35	3.1	171	2.4
I worked with one or more individuals and/or equipment (tools) to perform the task	1,168	19.5	391	34.9	1,569	21.9
I found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")	313	5.2	64	5.7	380	5.3
Missing	30	0.5	14	1.2	50	0.7
Total	5,990	100.0	1,121	100.0	7,154	100.0

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 24a shows incumbent results for those who responded that they have always had the strength to perform the physically demanding tasks required in their work. Nearly 2 out of 3 incumbents selected this response option for the item. Among male incumbents, nearly 70 percent selected this response option, while fewer than half of female incumbents responded to this item affirmatively. Thus, female incumbents were significantly more likely than male incumbents to indicate that they had to deal with a lack of strength in performing their jobs.

Table 24a. Incumbents reporting that they have always had the strength to perform physically demanding tasks

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not applicable; I have always had the strength to perform my physically demanding tasks	4,146	69.2	517	46.1	4,686	65.5
0	Other	1,814	30.3	590	52.6	2,418	33.8
	Missing	30	0.5	14	1.2	50	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.70	0.006	0.47	0.015	0.66	0.006

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

As shown in Table 24b, less than one percent of incumbents responded that, when they lacked the strength to perform a task, the task was not performed. Statistically, there was no difference between male and female responses to this response option.

Table 24c shows the percentage of incumbents who said they got someone else to complete tasks they lacked the strength to perform. Overall, only about 1 in 30 incumbents selected this option, and the percentages were low for both males and females. However, female incumbents were more than three times as likely as males to select this option. Even after excluding those who reported no strength problems, women were twice as likely as men to select this option.

Table 24b. Incumbents reporting that the task was not done when they lacked the strength to perform a physically demanding task

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	The task was not done	51	0.9	6	0.5	57	0.8
0	Other	5,909	98.6	1,101	98.2	7,047	98.5
	Missing	30	0.5	14	1.2	50	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.009	0.001	0.005	0.002	0.008	0.001

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 24c. Incumbents reporting that they got someone else to complete the task when they lacked the strength to perform a physically demanding task

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	I got someone else to complete the task	146	2.4	94	8.4	241	3.4
0	Other	5,814	97.1	1,013	90.4	6,863	95.9
	Missing	30	0.5	14	1.2	50	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 0.02	Std. 0.002	Mean 0.08	Std. 0.008	Mean 0.03	Std. 0.002

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

About 1 of 40 incumbents indicated that, when they lacked the strength to complete a task, their supervisor assigned the task to someone else. The results for this option are shown in Table 24d. Statistically, there was no difference in the percentages of male and female incumbents who selected this option.

Table 24d. Incumbents reporting that their supervisor got someone else to complete the task when they lacked the strength to perform a physically demanding task

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	My supervisor assigned the task to someone else	136	2.3	35	3.1	171	2.4
0	Other	5,824	97.2	1,072	95.6	6,933	96.9
	Missing	30	0.5	14	1.2	50	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 0.02	Std. 0.002	Mean 0.03	Std. 0.005	Mean 0.02	Std. 0.002

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

The results in Table 24e show that over 1 in 5 incumbents said that they worked with one or more other co-workers and/or equipment (tools) to complete the task. This was the most frequent response option other than the first option (shown in Table 24a), and it was thus respondents' preferred method for performing a task when they lacked the strength to complete it alone. In fact, nearly 2 out of 3 of those who didn't select the first option chose this one. Female incumbents were nearly twice as likely as males to select this response option, but when those with adequate strength (option 1) are excluded, the percentages of males and females choosing this option are about equal.

Table 24e. Incumbents reporting that they worked with others and/or tools to complete the task when they lacked the strength to perform a physically demanding task

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	I worked with one or more individuals and/or equipment (tools) to perform the task	1,168	19.5	391	34.9	1,569	21.9
0	Other	4,792	80.0	716	63.9	5,535	77.4
	Missing	30	0.5	14	1.2	50	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.20	0.005	0.35	0.01	0.22	0.005

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

The final option to this item asked respondents whether they found an alternate means of completing the task satisfactorily that didn't require the assistance of others. Slightly more than 1 in 20 selected this option, as shown in Table 24f. There was no statistical difference in the response rates of male and female incumbents.

Table 24f. Incumbents reporting that they found another satisfactory way to complete a task that didn't require others when they lacked the strength to perform a physically demanding task

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	I found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")	313	5.2	64	5.7	380	5.3
0	Other	5,647	94.3	1,043	93.0	6,724	94.0
	Missing	30	0.5	14	1.2	50	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Stdd.
	Mean and Std. Error	0.05	0.003	0.06	0.007	0.05	0.003

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Overall supervisor responses to this item are shown in Table 25. As with the incumbent responses to this item, the results for each option in this item must be presented in separate tables

in order to be analyzed correctly (see footnote 3). Means and standard errors are computed for each response option, and are presented in Tables 25a through 25f.

Table 25. Supervisor reports of what occurred when first-term subordinates lacked the strength to perform a physically demanding individual (not team) task

	Supervisors					
	Males		Females		Total	
Response	Frequency	Percent	Frequency	Percent	Frequenc	Percent
Not applicable; my first-term subordinates have always had the strength to perform their physically demanding tasks	1,897	49.7	157	52.2	2,062	49.7
The task was not done	59	1.5	3	1.0	62	1.5
The individual got someone else to complete the task	294	7.7	15	5.0	310	7.5
I assigned the task to someone else	288	7.5	19	6.3	310	7.5
The individual worked with one or more individuals and/or equipment (tools) to perform the task	1,081	28.3	84	27.9	1,171	28.3
The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around)	90	2.4	8	2.7	98	2.4
Missing	109	2.9	15	5.0	132	3.2
Total	3,818	100.0	301	100.0	4,145	100.0

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

As shown in Table 25a, about half of the supervisors selected the first option to this item, indicating that their first-term subordinates always have adequate strength to perform the tasks demanded of their jobs. This percentage was slightly lower than that of the incumbents who selected this option, but supervisors were responding for all their subordinates, whereas incumbents were responding only for themselves. Male and female supervisors perceived their subordinates similarly, and there was no statistical difference in their responses.

Table 25a. Supervisors reporting that their first-term subordinates have always had the strength to perform physically demanding tasks

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not applicable; my first-term subordinates have always had the strength to perform their physically demanding tasks	1,897	49.7	157	52.2	2,062	49.7
0	Other	1,812	47.5	129	42.9	1,951	47.1
	Missing	109	2.9	15	5.0	132	3.2
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.51	0.01	0.55	0.03	0.51	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

The responses shown in Table 25b indicate supervisor percentages who said that when their first-term subordinates lacked the strength to complete the task, the task was not performed. Only 1.5 percent of responding supervisors selected this option; this percentage was slightly higher than that of the incumbents selecting this option. There was no statistical difference in the perceptions of male and female supervisors.

Table 25b. Supervisors reporting that the task was not done when their first-term subordinates lacked the strength to perform a physically demanding task

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	The task was not done	59	1.5	3	1.0	62	1.5
0	Other	3,650	95.6	283	94.0	3,951	95.3
	Missing	109	2.9	15	5.0	132	3.2
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.02	0.002	0.01	0.006	0.02	0.002

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 25c indicates the percentage of supervisors who said that their first-term subordinates got someone else to complete the task when they lacked the strength to perform it themselves. About 7.5 percent of supervisors selected this option, about twice the percentage of incumbents who chose this option. The small difference in the perceptions of male and female supervisors was not statistically significant.

Table 25c. Supervisors reporting that their first-term subordinates got someone else to complete the task when they lacked the strength to perform a physically demanding task

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	The individual got someone else to complete the task	294	7.7	15	5.0	310	7.5
0	Other	3,415	89.4	271	90.0	3,703	89.3
	Missing	109	2.9	15	5.0	132	3.2
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 0.08	Std. 0.004	Mean 0.05	Std. 0.01	Mean 0.08	Std. 0.004

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Responses of supervisors who said they assigned tasks to someone else when their subordinates lacked strength are shown in Table 25d. By coincidence, the same overall percentage of supervisors selected this option as the previous option, 7.5 percent. In this case, the percentage of supervisors choosing this option was about three times that of incumbents. There was no statistical difference between the perceptions of male and female supervisors.

As with incumbents, other than supervisors who said there was no strength problem among their subordinates (first response option), the largest percentage of supervisors indicated that when their subordinates lacked the strength to complete a task, they worked with others and/or tools to finish the task. These results are shown in Table 25e. Over 1 in 4 supervisors selected this option. There was no difference in the response rates of male and female supervisors.

Table 25d. Supervisors reporting that they assigned someone else to complete the task when their first-term subordinates lacked the strength to perform a physically demanding task

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	I assigned the task to someone else	288	7.5	19	6.3	310	7.5
0	Other	3,421	89.6	267	88.7	3,703	89.3
	Missing	109	2.9	15	5.0	132	3.2
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 0.08	Std. 0.004	Mean 0.06	Std. 0.01	Mean 0.08	Std. 0.004

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 25e. Supervisors reporting that their first-term subordinates worked with others and/or tools to complete the task when they lacked the strength to perform a physically demanding task

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	The individual worked with one or more individuals and/or equipment (tools) to perform the task	1,081	28.3	84	27.9	1,171	28.3
0	Other	2,628	68.8	202	67.1	2,842	68.6
	Missing	109	2.9	15	5.0	132	3.2
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean	Std.	Mean	Std.	Mean	Std.
		0.29	0.01	0.29	0.03	0.29	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Finally, Table 25f indicates that only about 1 in 40 supervisors reported that their subordinates found a different, but satisfactory, means of completing the task that didn't require the assistance of others. This response rate is about half that of incumbents selecting this option. As with the other response options to this item, there was no difference in the response rates of male and female supervisors.

If the task was not done or completion of the work was delayed for a substantial period of time due to lack of physical strength, what was the overall effect? An important aspect in determining if lack of physical strength is a problem in the military is whether it reduces others' ability to perform mission essential tasks. This survey item was included to determine if incumbents or supervisors thought there were such cascading effects. Nearly 2 out of 3 incumbents believed that delays in completing tasks due to lack of physical strength had no impact on others' ability to complete mission essential tasks, as Table 26 shows. Another 12 percent thought the impact was only minimal. Fewer than 10 percent thought there was "Some impact" or "Significant impact" on others' ability to perform mission essential tasks. In other words, incumbents generally believed that delay of work due to an individual's lack of strength did not keep others from performing mission essential tasks. Male and female incumbents did not differ significantly in their responses to this item.

Table 25f. Supervisors reporting that their first-term subordinates found another satisfactory way to complete a task that didn't require others when they lacked the strength to perform a physically demanding task

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")	90	2.4	8	2.7	98	2.4
0	Other	3,619	94.8	278	92.4	3,915	94.5
	Missing	109	2.9	15	5.0	132	3.2
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 0.02	Std. 0.003	Mean 0.03	Std. 0.01	Mean 0.02	Std. 0.002

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 26. Incumbent reports of the overall effect of lack of physical strength on others' ability to complete mission essential tasks if task was not done or was delayed for a substantial period of time

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No impact on others' ability to complete mission essential tasks	3,905	65.2	698	62.3	4,627	64.7
2	Minimal impact on others' ability to complete mission essential tasks	706	11.8	158	14.1	871	12.2
3	Some impact on others' ability to complete mission essential tasks	327	5.5	60	5.4	387	5.4
4	Significant impact on others' ability to complete mission essential tasks	187	3.1	26	2.3	213	3.0
	Don't know	747	12.5	154	13.7	906	12.7
	Missing	118	2.0	25	2.2	150	2.1
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 1.37	Std. 0.01	Mean 1.38	Std. 0.02	Mean 1.37	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. "Don't know" it is not assigned a scale value because it is excluded from calculation of mean and standard error.
3. Percentages may not total to 100 percent due to rounding.

Supervisors' views were somewhat less positive than those of incumbents, as shown in Table 27. Nevertheless, fewer than half thought that delay in completing a task due to lack of strength impacted others' ability to perform mission essential tasks. About 1 in 6 thought that lack of strength would have "Some impact" or "Substantial impact" on others' ability to complete mission essential tasks, about twice the rate of incumbents. More males than females saw an impact of lack of strength on others' ability to complete mission essential tasks. While about 1 out of 6 male supervisors indicated either "Some impact" or "Substantial impact" on others' ability to complete mission essential tasks, only about 1 in 9 females selected either of these response options. This difference could not be explained by the fact that males, on average, supervise more personnel than females, nor did the effect of working in differing occupational specialties explain the difference.

Table 27. Supervisor reports of the overall effect of lack of physical strength on others' ability to complete mission essential tasks if task was not done or was delayed for a substantial period of time

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No impact on others' ability to complete mission essential tasks	2,097	54.9	181	60.1	2,290	55.2
2	Minimal impact on others' ability to complete mission essential tasks	746	19.5	43	14.3	792	19.1
3	Some impact on others' ability to complete mission essential tasks	479	12.5	26	8.6	508	12.3
4	Significant impact on others' ability to complete mission essential tasks	151	4.0	7	2.3	158	3.8
	Don't know	160	4.2	17	5.6	177	4.3
	Missing	185	4.8	27	9.0	220	5.3
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 1.62	Std. 0.01	Mean 1.45	Std. 0.05	Mean 1.61	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. "Don't know" it is not assigned a scale value because it is excluded from calculation of mean and standard error.
3. Percentages may not total to 100 percent due to rounding.

During the past 12 months, what impact has a lack of physical strength on your part/of your first-term subordinates had on mission readiness? Before this item, the following definition of mission readiness was provided: "Mission Readiness refers to a unit being able to perform its assigned mission(s) effectively. For those units that have a combat mission, mission readiness refers to the ability to participate effectively and efficiently in combat, contingency, and exercise operations."

Table 28 shows that more than 4 out of 5 incumbents thought that lack of strength on their part had no impact on mission readiness, and 9 out of 10 thought the impact was no more than minimal. Altogether, less than five percent thought their lack of strength had more than a minimal impact. However, over five percent of incumbents responded "Don't know" to this item or left it blank. Male incumbents were slightly less likely than their female counterparts to report that their own lack of strength had an impact on mission readiness, but the difference was small.

Table 29 shows that supervisors, with perhaps a better understanding of the causes and components of mission readiness than their first-term subordinates, believed that lack of physical strength had somewhat more impact on mission readiness. Nevertheless, more than 4 out of 5 supervisors thought that the impact of lack of strength was, at most, minimal. Only about 1 in 8

thought that there was "Some impact" or "Significant impact" of lack of physical strength on mission readiness. Differences between male and female supervisor responses to this item were not significantly different.

Table 28. Incumbent reports of the impact of a lack of their physical strength on mission readiness during past 12 months

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No impact on mission readiness	4,955	82.7	868	77.4	5,855	81.8
2	Minimal impact on mission readiness	488	8.1	120	10.7	608	8.5
3	Some impact on mission readiness	164	2.7	45	4.0	209	2.9
4	Significant impact on mission readiness	85	1.4	15	1.3	102	1.4
	Don't know	238	4.0	58	5.2	298	4.2
	Missing	60	1.0	15	1.3	82	1.1
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 1.19	Std. 0.01	Mean 1.24	Std. 0.02	Mean 1.20	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. "Don't know" it is not assigned a scale value because it is excluded from calculation of mean and standard error.
3. Percentages may not total to 100 percent due to rounding.

Table 29. Supervisor reports of the impact of a lack of first-term subordinate physical strength on mission readiness during past 12 months

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No impact on mission readiness	2,293	60.1	193	64.1	2,497	60.2
2	Minimal impact on mission readiness	865	22.7	50	16.6	920	22.2
3	Some impact on mission readiness	382	10.0	25	8.3	407	9.8
4	Significant impact on mission readiness	93	2.4	7	2.3	101	2.4
	Don't know	73	1.9	12	4.0	86	2.1
	Missing	112	2.9	14	4.7	134	3.2
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	1.53	0.01	1.44	0.05	1.52	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Does your unit provide job-related strength training? About 2 out of 5 incumbents indicated that their units provide strength training, as Table 30 shows. Women reported a much smaller percentage of units providing strength training than did men; the data available from the survey fail to provide insight into the reason for this difference. Further investigation of this issue appears warranted, including investigation of the availability of facilities, the appropriateness of the types of equipment and training available, and the differing strength-training needs of male and female servicemembers.

As with incumbents, about 2 out of 5 supervisors reported that their units provide strength training, as shown in Table 31. The discrepancy in male-female supervisor reports of available strength training echoes the discrepancy reported by male and female incumbents. As stated above, further study of these differences appears to be warranted.

Table 30. Incumbent reports of the percentage of units providing strength training

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Yes	2,348	39.2	306	27.3	2,666	37.3
2	No	3,594	60.0	799	71.3	4,418	61.8
	Missing	48	0.8	16	1.4	70	1.0
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean & Std. Error	1.60	0.01	1.72	0.01	1.62	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 31. Supervisor reports of the percentage of units providing strength training

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Yes	1,533	40.2	97	32.2	1,639	39.5
2	No	2,191	57.4	193	64.1	2,393	57.7
	Missing	94	2.5	11	3.7	113	2.7
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Item Mean & Std.	1.59	0.01	1.67	0.03	1.59	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

If you answered "Yes," how helpful is this training in improving your job performance/the job performance of your first-term subordinates? As Table 32 shows, incumbents generally thought that available strength training was helpful. Although the responses tended to cluster around the scale midpoint, over 70 percent thought the strength training was at least moderately helpful. Male and female incumbent responses did not differ significantly on this item.

Supervisors provided slightly more positive responses to this item than did incumbents, as Table 33 shows, but the difference was small. Over 80 percent of supervisors thought that the available strength training was at least moderately helpful. Male and female supervisor responses did not differ significantly for this item.

If you answered "No," how helpful would this training be in improving your job performance/the job performance of your first-term subordinates? Incumbents without access to strength training believed it would be of less benefit than those who did have access to training, as a comparison of Tables 32 and 34 indicates. The survey results provide no indication of the reason for this difference. Further investigation of the response differences between those with and without access to strength training is warranted.

Table 32. For incumbents answering "Yes," opinions of how helpful strength training is in improving their job performance

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not at all helpful	137	5.8	14	4.6	151	5.7
2	Somewhat helpful	523	22.3	79	25.8	607	22.8
3	Moderately helpful	687	29.3	92	30.1	780	29.3
4	Very helpful	619	26.4	79	25.8	701	26.3
5	Extremely helpful	365	15.5	39	12.7	407	15.3
	Missing	17	0.7	3	1.0	20	0.8
	Total	2,348	100.0	306	100.0	2,666	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean & Std. Error	3.24	0.02	3.17	0.06	3.23	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 33. For supervisors answering "Yes," opinions of how helpful strength training is in improving first-term subordinates' job performance

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not at all helpful	47	3.1	3	3.1	51	3.1
2	Somewhat helpful	365	23.8	25	25.8	391	23.9
3	Moderately helpful	423	27.6	34	35.1	459	28.0
4	Very helpful	461	30.1	28	28.9	491	30.0
5	Extremely helpful	226	14.7	5	5.2	234	14.3
	Missing	11	0.7	2	2.1	13	0.8
	Total	1,533	100.0	97	100.0	1,639	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	3.30	0.03	3.07	0.10	3.29	0.03

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Female incumbents responded somewhat more negatively than males on this item. While the reasons for the discrepancy are not apparent in the survey data, the more negative female responses are in accord with those for the above item. Female incumbents may see less value in strength training than do male incumbents.

Supervisors without available strength training were also less positive in their estimates of its benefit than those with access, as can be seen by comparing Tables 33 and 35. Unlike the responses of incumbents to this item, there was no significant difference between male and female supervisor responses.

Among incumbents, there was a small but consistent interactive relationship among strength and injury problems, belief in helpfulness of strength training, and the availability of the training. Incumbents in units that provide strength training who had more problems with injuries or lack

of strength thought that such training was *less* helpful than those who had fewer problems. In contrast, those who lacked strength or had injuries in units that do *not* provide such training thought that the availability of strength training would be *more* helpful than did those with fewer problems.[4]

Table 34. For incumbents answering "No," opinions of how helpful strength training would be in improving first-term incumbents' job performance

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not at all helpful	914	25.4	222	27.8	1,143	25.9
2	Somewhat helpful	1,067	29.7	266	33.3	1,337	30.3
3	Moderately helpful	675	18.8	145	18.1	825	18.7
4	Very helpful	492	13.7	96	12.0	593	13.4
5	Extremely helpful	409	11.4	54	6.8	466	10.5
	Missing	37	1.0	16	2.0	54	1.2
	Total	3,594	100.0	799	100.0	4,418	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	2.55	0.02	2.35	0.04	2.52	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 35. For supervisors answering "No," opinions of how helpful strength training would be in improving first-term incumbents' job performance

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not at all helpful	566	25.8	57	29.5	625	26.1
2	Somewhat helpful	691	31.5	62	32.1	757	31.6
3	Moderately helpful	389	17.8	25	13.0	415	17.3
4	Very helpful	347	15.8	36	18.7	384	16.0
5	Extremely helpful	167	7.6	9	4.7	177	7.4
	Missing	31	1.4	4	2.1	35	1.5
	Total	2,191	100.0	193	100.0	2,393	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	2.47	0.03	2.35	0.09	2.46	0.03

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

[4]Incumbents in units providing strength training thought its availability was less helpful if they had suffered more injuries ($r = -.18$, $p < .001$), if those injuries were more severe ($r = -.20$, $p < .001$), if they had lacked strength more often ($r = -.17$, $p < .001$), and if their lack of strength had had a greater impact ($r = -.20$, $p < .001$) than those with fewer of these problems. In contrast, incumbents in units *not* providing strength training thought its availability would be *more* helpful among those with more injuries ($r = .10$, $p < .001$), those who have had more severe injuries ($r = .17$, $p < .001$), those who lacked strength more times ($r = .11$, $p < .001$), and those for whom lack of strength had more impact ($r = .13$, $p < .001$) than those with fewer problems.

Physical Endurance and Job Performance

This section includes a number of items about physical endurance that parallel those in the *Physical Strength and Performance* section. At the beginning of this section, endurance is defined as "the ability to carry on with work despite the physical demands of the job—not necessarily related to strength. Endurance is related to physically demanding repetitive duty such as running or repetitive lifting." The items in this section are as follows:

How many times in the past 12 months did you/your first-term subordinates lack the endurance to complete a task (e.g., were especially winded or tired), typically not performed as a team task, while working in the job? As shown in Table 36, about 3 out of 4 incumbents indicated that they had never lacked the physical endurance to complete a work task during the past year. When those who responded that they lacked endurance between 1 to 3 times are added, well over 90 percent of incumbents said that they had lacked endurance no more than 3 times in the past year. Male incumbents were more likely than females to say that they had never lacked the endurance to perform their work during the past 12 months. While more than 3 out of 4 males reported that they never lacked endurance, only about 2 out of 3 females selected this option. Excluding the first option ("Never"), women reported higher percentages than men for each response option for this item. Based on this item, therefore, their self-assessment is that they have significantly less endurance than their male counterparts.

Table 36. Incumbent reports of the number of times in the past 12 months they lacked the endurance to complete a task, while performing their job

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Never	4,543	75.8	749	66.8	5,318	74.3
2	1-3 times	1,006	16.8	244	21.8	1,256	17.6
3	4-10 times	223	3.7	56	5.0	281	3.9
4	11-20 times	71	1.2	30	2.7	101	1.4
5	More than 20 times	124	2.1	35	3.1	162	2.3
	Missing	23	0.4	7	0.6	36	0.5
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	1.36	0.01	1.53	0.03	1.39	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Supervisor responses to this item are shown in Table 37. Reporting for all their first-term subordinates, they reported a higher incidence of endurance problems, but they still stated that over 5 in 6 had three or fewer endurance problems in the previous year. Contrary to incumbent responses, female supervisors reported a *higher* percentage of first-term subordinates who had never lacked endurance in the previous year than male supervisors. However, when adjusted by number of personnel supervised, the difference between male and female responses disappears.

What generally happened if you/your first-term subordinates lacked the endurance to perform a physically demanding individual (not team) task? For incumbents, overall results for

this item are shown in Table 38. As with the analogous physical strength item (Table 24), each option is analyzed separately, because each option represented a different *category* of response, rather than different response *levels*. (see footnote 3 for a more complete explanation.)

Table 37. Supervisor reports of the number of times in the past 12 months first-term subordinates lacked the endurance to complete a task, while performing their job

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Never	2,236	58.6	192	63.8	2,437	58.8
2	1-3 times	963	25.2	65	21.6	1,035	25.0
3	4-10 times	333	8.7	21	7.0	355	8.6
4	11-20 times	95	2.5	2	0.7	98	2.4
5	More than 20 times	84	2.2	4	1.3	88	2.1
	Missing	107	2.8	17	5.6	132	3.2
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	1.61	0.02	1.45	0.05	1.60	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 38. Incumbent reports of what occurred if they lacked the endurance to perform a physically demanding individual (not team) task

Response	Incumbents					
	Males		Females		Total	
	Frequency	Percent	Frequency	Percent	Frequenc	Percent
Not applicable; I have always had the endurance to perform my physically demanding tasks	4,344	72.5	681	60.7	5,048	70.6
The task was not done	112	1.9	16	1.4	128	1.8
I got someone else to complete the task	128	2.1	40	3.6	169	2.4
My supervisor assigned the task to someone else	101	1.7	31	2.8	133	1.9
I worked with one or more individuals and/or equipment (tools) to perform the task	913	15.2	258	23.0	1,175	16.4
I found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")	358	6.0	83	7.4	449	6.3
Missing	34	0.6	12	1.1	52	0.7
Total	5,990	100.0	1,121	100.0	7,154	100.0

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Response data for the first option of this item are shown in Table 38a. More than 7 out of 10 incumbents selected this option, indicating that they had never lacked the endurance to complete their work tasks. Male incumbents were much more likely than their female counterparts to answer affirmatively to this item. Only about 60 percent of female incumbents selected this option, while over 70 percent of the males did. While the percentages for this option are slightly lower than the percentages for the similar first option of the previous item, the difference between male and female responses for the two options are about the same.

Table 38a. Incumbents reporting that they have always had the endurance to perform physically demanding tasks

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not applicable; I have always had the endurance to perform my physically demanding tasks	4,344	72.5	681	60.7	5,048	70.6
0	Other	1,612	26.9	428	38.2	2,054	28.7
	Missing	34	0.6	12	1.1	52	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.73	0.01	0.61	0.01	0.71	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 38b presents the results for the second response option to this item. Fewer than two percent of incumbents indicated that the task was not completed if the individual lacked the strength to perform. There was no statistical difference between male and female responses to this option.

Table 38b. Incumbents reporting that the task was not done when they lacked the endurance to perform a physically demanding task

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	The task was not done	112	1.9	16	1.4	128	1.8
0	Other	5,844	97.6	1,093	97.5	6,974	97.5
	Missing	34	0.6	12	1.1	52	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.02	0.002	0.01	0.004	0.02	0.002

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

About 1 in 40 incumbents selected the option indicating that they got someone else to complete the task, shown in Table 38c. Female incumbents were nearly twice as likely as males to choose this option. However, of those not selecting the first option (i.e., of those who indicated that they lacked endurance), males and females chose this option nearly equally.

Table 38d shows that approximately 1 in 50 incumbents responded that their supervisor assigned the task to someone else when they lacked the strength to perform the task. Again, females were much more likely than males to choose this option, but the proportions are about equal when excluding those who said that they never lacked endurance.

Working with other individuals and/or with equipment or tools was the second most frequent option for this item. About 1 of 6 respondents selected this option, shown in Table 38e. Again, women were more likely to choose this option than men, but the proportions were essentially the same among those selecting other than the first option.

Table 38c. Incumbents reporting that they got someone else to complete the task when they lacked the endurance to perform a physically demanding task

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	I got someone else to complete the task	128	2.1	40	3.6	169	2.4
0	Other	5,828	97.3	1,069	95.4	6,933	96.9
	Missing	34	0.6	12	1.1	52	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 0.02	Std. 0.002	Mean 0.04	Std. 0.006	Mean 0.02	Std. 0.002

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 38d. Incumbents reporting that their supervisors got someone else to complete the task when they lacked the endurance to perform a physically demanding task

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	My supervisor assigned the task to someone else	101	1.7	31	2.8	133	1.9
0	Other	5,855	97.7	1,078	96.2	6,969	97.4
	Missing	34	0.6	12	1.1	52	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 0.02	Std. 0.002	Mean 0.03	Std. 0.005	Mean 0.02	Std. 0.002

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 38e. Incumbents reporting that they worked with others and/or tools to complete the task when they lacked the endurance to perform a physically demanding task

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	I worked with one or more individuals and/or equipment (tools) to perform the task	913	15.2	258	23.0	1,175	16.4
0	Other	5,043	84.2	851	75.9	5,927	82.8
	Missing	34	0.6	12	1.1	52	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Sd. Error	0.15	0.005	0.23	0.01	0.17	0.004

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

About six percent of incumbents said they found a different way to complete a task when they lacked endurance, as Table 38f shows. Statistically, there was no difference in the percentages of male and female incumbents who chose this option.

Table 38f. Incumbents reporting that they found another satisfactory way to complete a task that didn't require others when they lacked the endurance to perform a physically demanding task

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	I found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")	358	6.0	83	7.4	449	6.3
0	Other	5,598	93.5	1,026	91.5	6,653	93.0
	Missing	34	0.6	12	1.1	52	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.06	0.003	0.07	0.008	0.06	0.003

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 39 shows overall supervisor responses to the item asking what occurred if a first-term subordinate lacked the endurance to complete a job. As stated above, the response options are categorical, so the analysis of the results for each option will be presented separately.

Table 39. Supervisor reports of what occurred when first-term incumbents lacked the endurance to perform a physically demanding individual (not team) task

Response	Supervisors					
	Males		Females		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Not applicable; my first-term subordinates have always had the endurance to perform their physically demanding tasks	2,111	55.3	177	58.8	2,295	55.4
The task was not done	118	3.1	3	1.0	121	2.9
The individual got someone else to complete the task	183	4.8	15	5.0	200	4.8
I assigned the task to someone else	225	5.9	10	3.3	237	5.7
The individual worked with one or more individuals and/or equipment (tools) to perform the task	927	24.3	68	22.6	1,002	24.2
The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")	138	3.6	9	3.0	147	3.5
Missing	116	3.0	19	6.3	143	3.4
Total	3,818	100.0	301	100.0	4,145	100.0

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

About 55 percent of supervisors stated that their first-term subordinates always had the endurance to perform their physically demanding tasks, as Table 39a shows. This percentage was somewhat less than that reported by incumbents, but supervisors were reporting for all of their subordinates. Statistically, there was no difference in the percentages reported by male and female supervisors.

Only about three percent of supervisors said that when their first-term subordinates lacked endurance the task was not performed, as shown in Table 39b. Only three female supervisors, one percent of the total, selected this option, which was significantly less than the three percent of male supervisors choosing this option. However, this difference was not significant after adjusting for the differing numbers of first-term personnel supervised by male and female supervisors.

Table 39a. Supervisors reporting that their first-term subordinates have always had the endurance to perform physically demanding tasks

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not applicable; my first-term subordinates have always had the endurance to perform their physically demanding tasks	2,111	55.3	177	58.8	2,295	55.4
0	Other	1,591	41.7	105	34.9	1,707	41.2
	Missing	116	3.0	19	6.3	143	3.4
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 0.57	Std. 0.01	Mean 0.62	Std. 0.03	Mean 0.57	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 39b. Supervisors reporting that the task was not done when their first-term subordinates lacked the endurance to perform a physically demanding task

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	The task was not done	118	3.1	3	1.0	121	2.9
0	Other	3,584	93.9	279	92.7	3,881	93.6
	Missing	116	3.0	19	6.3	143	3.4
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 0.03	Std. 0.003	Mean 0.01	Std. 0.006	Mean 0.03	Std. 0.003

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 39c shows that only about five percent of supervisors said their first-term subordinates got someone else to perform the task when they lacked the endurance to complete it. There was no significant difference in the proportions of male and female supervisors who selected this option.

Less than six percent of supervisors responding indicated that when their subordinates lacked the endurance to complete a task, they assigned the task to someone else. Male supervisors were almost twice as likely as females to select this option, but because of the small numbers of respondents involved and because of the differing numbers of males and females who left this item blank, the difference was not statistically significant. These results are shown in Table 39d.

The majority of supervisors whose subordinates had endurance problems (i.e., who didn't select the first option to this item) indicated that their subordinates worked with other individuals

and/or equipment to complete the task, as shown in Table 39e. Male and female supervisors selected this option with approximately the same frequency.

Table 39c. Supervisors reporting that their first-term subordinates got someone else to complete the task when they lacked the endurance to perform a physically demanding task

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	The individual got someone else to complete the task	183	4.8	15	5.0	200	4.8
0	Other	3,519	92.2	267	88.7	3,802	91.7
	Missing	116	3.0	19	6.3	143	3.4
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.05	0.004	0.05	0.01	0.05	0.003

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 39d. Supervisors reporting that they assigned someone else to complete the task when they lacked the endurance to perform a physically demanding task

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	I assigned the task to someone else	225	5.9	10	3.3	237	5.7
0	Other	3,477	91.1	272	90.4	3,765	90.8
	Missing	116	3.0	19	6.3	143	3.4
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.06	0.004	0.04	0.01	0.06	0.004

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 39e. Supervisors reporting that their first-term subordinates worked with others and/or tools to complete the task when they lacked the endurance to perform a physically demanding task

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	The individual worked with one or more individuals and/or equipment (tools) to perform the task	927	24.3	68	22.6	1,002	24.2
0	Other	2,775	72.7	214	71.1	3,000	72.4
	Missing	116	3.0	19	6.3	143	3.4
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.25	0.01	0.24	0.03	0.25	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Results for the final option of this item are shown in Table 39f. About 1 in 30 supervisors selected this option, indicating that their subordinates found other means of completing their tasks without having to ask for the assistance of others. There was essentially no difference in the proportions of male and female supervisors who selected this option.

Table 39f. Supervisors reporting that their first-term subordinates found another satisfactory way to complete a task that didn't require others when they lacked the endurance to perform a physically demanding task

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around)	138	3.6	9	3.0	147	3.5
0	Other	3,564	93.3	273	90.7	3,855	93.0
	Missing	116	3.0	19	6.3	143	3.4
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	0.04	0.003	0.03	0.01	0.04	0.003

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

If the task was not done or completion of the work was delayed for a substantial period of time due to lack of physical endurance, what was the overall effect? Incumbent results for this item are shown in Table 40. About 2 out of 3 incumbents thought lack of physical endurance on their part had no impact on co-workers' ability to perform mission essential tasks. Fewer than 1 in 10 said that lack of endurance had either "Some impact" or "Significant impact." The response proportions of male and female incumbents to this item were virtually the same.

Supervisor responses to this item are shown in Table 41. Their judgment was that lack of endurance has greater impact than incumbents believed. However, well over half of the supervisors said that lack of endurance had no impact on completion of mission essential tasks, and when those indicating minimal impact are added to this total, about 3 in 4 reported that the impact of lack of endurance was no more than minimal. About the same percentage of male and female supervisors indicated no impact, but more males indicated "Some impact" or "Significant impact," while more females either responded "Don't know" or left the item blank. As a result, women indicated less impact than men. However, when the differences are adjusted by the various occupational specialties and by the number of personnel supervised, this difference in judged impact disappears.

Does your unit provide job-related endurance training? Incumbent reports of whether their assigned units provide endurance training are shown in Table 42. Less than 40 percent of the respondents stated that their units provide such training. Male incumbents answered affirmatively to this item at more than one and a half times the rate of females. It is difficult to understand why there would be such a large discrepancy between men and women in responding to this question. An analysis was performed to adjust by occupational specialty, but this did not explain the difference. It is possible that male and female incumbents may define the phrase "provide job-related endurance training" differently.

Table 40. Incumbent reports of overall effect of lack of endurance on others' ability to complete mission essential tasks if task was not done or was delayed for a substantial period of time

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No impact on others' ability to complete mission essential tasks	3,903	65.2	707	63.1	4,638	64.8
2	Minimal impact on others' ability to complete mission essential tasks	725	12.1	153	13.6	883	12.3
3	Some impact on others' ability to complete mission essential tasks	376	6.3	76	6.8	453	6.3
4	Significant impact on others' ability to complete mission essential tasks	189	3.2	20	1.8	210	2.9
	Don't know	686	11.5	137	12.2	824	11.5
	Missing	111	1.9	28	2.5	146	2.0
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 1.39	Std. 0.01	Mean 1.38	Std. 0.02	Mean 1.39	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. "Don't know" it is not assigned a scale value because it is excluded from calculation of mean and standard error.
3. Percentages may not total to 100 percent due to rounding.

Table 41. Supervisor reports of overall effect of lack of endurance on others' ability to complete mission essential tasks if task was not done or was delayed for a substantial period of time

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No impact on others' ability to complete mission essential tasks	2,154	56.4	174	57.8	2,336	56.4
2	Minimal impact on others' ability to complete mission essential tasks	701	18.4	53	17.6	760	18.3
3	Some impact on others' ability to complete mission essential tasks	444	11.6	21	7.0	468	11.3
4	Significant impact on others' ability to complete mission essential tasks	163	4.3	7	2.3	171	4.1
	Don't know	158	4.1	17	5.6	175	4.2
	Missing	198	5.2	29	9.6	235	5.7
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 1.60	Std. 0.02	Mean 1.45	Std. 0.05	Mean 1.59	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. "Don't know" it is not assigned a scale value because it is excluded from calculation of mean and standard error.
3. Percentages may not total to 100 percent due to rounding.

About 2 out of 5 supervisors indicated that their units provide endurance training, as can be seen in Table 43. The percentage responding positively was slightly higher than that of incumbents. The discrepancy between male and female responses to this item was even greater than that of the incumbents, with over 40 percent of male supervisors responding affirmatively compared with only 25 percent of female supervisors. As with incumbents, the supervisors' occupational specialty does not explain the difference between male and female responses. Whether the difference is in actual facilities and training available or whether it is a difference in perception cannot be determined by this research and warrants further study.

Table 42. Incumbent reports of the percentage of units providing endurance training

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Yes	2,346	39.2	291	26.0	2,650	37.0
2	No	3,600	60.1	816	72.8	4,440	62.1
	Missing	44	0.7	14	1.2	64	0.9
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 1.61	Std. 0.01	Mean 1.74	Std. 0.01	Mean 1.63	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 43. Supervisor reports of the percentage of units providing endurance training

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Yes	1,555	40.7	76	25.2	1,640	39.6
2	No	2,165	56.7	211	70.1	2,385	57.5
	Missing	98	2.6	14	4.7	120	2.9
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 1.58	Std. 0.01	Mean 1.74	Std. 0.03	Mean 1.59	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

If you answered "Yes," how helpful is this training in improving your job performance/the job performance of your first-term subordinates? Responses to this item, shown in Table 44, are well distributed across the scale, with the average response slightly positive. That is, incumbents thought that available endurance training resources are somewhat better than moderately helpful. There was no significant difference between male and female incumbent responses.

Supervisor responses to this item are also well distributed on the scale, and the average response was again slightly positive. Supervisors, in fact, thought that endurance training was slightly more helpful than did incumbents. Male and female responses did not differ significantly. These results are depicted in Table 45.

If you answered "No," how helpful would this training be in improving your job performance/the job performance of your first-term subordinates? As with the responses for strength training, incumbents without access to endurance training believed it would be of less benefit than those who did have access. (See Tables 44 and 46 for comparison.) Male incumbents believed that such training would be somewhat more helpful to them than did female incumbents, though the difference was small.

Table 44. For incumbents answering "Yes," opinions of how helpful endurance training is in improving their job performance

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not at all helpful	144	6.1	19	6.5	164	6.2
2	Somewhat helpful	527	22.5	74	25.4	607	22.9
3	Moderately helpful	686	29.2	94	32.3	782	29.5
4	Very helpful	593	25.3	67	23.0	662	25.0
5	Extremely helpful	360	15.3	33	11.3	394	14.9
	Missing	36	1.5	4	1.4	41	1.5
	Total	2,346	100.0	291	100.0	2,650	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	3.22	0.02	3.07	0.06	3.20	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 45. For supervisors answering "Yes," opinions of how helpful endurance training is in improving their job performance

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not at all helpful	56	3.6	0	0.0	56	3.4
2	Somewhat helpful	357	23.0	15	19.7	374	22.8
3	Moderately helpful	439	28.2	26	34.2	467	28.5
4	Very helpful	449	28.9	28	36.8	479	29.2
5	Extremely helpful	220	14.1	4	5.3	227	13.8
	Missing	34	2.2	3	3.9	37	2.3
	Total	1,555	100.0	76	100.0	1,640	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Item Mean & Std.	3.28	0.03	3.29	0.10	3.28	0.03

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Supervisors who indicated that endurance training was not available expressed much less assurance that the training would be helpful than those whose units did provide such training, as a comparison of Tables 45 and 47 shows. Male and female supervisors did not differ in their judgments of the usefulness of endurance training.

How many different kinds of tasks do you/your first-term subordinates perform as part of your/their job that leave you/them especially winded or tired (e.g., repetitive lifting or lift-and-carry tasks)? The largest number of incumbents said that there were no tasks that left them tired or winded, as Table 48 shows. Together with those who indicated only one tiring task, over half of the respondents stated that only one task or no task left them tired or winded. Fewer than 1 in 10 reported being tired or winded by 10 or more tasks.

Table 46. For incumbents answering "No," opinions of how helpful endurance training would be in improving first-term incumbents' job performance

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not at all helpful	1,005	27.9	224	27.5	1,235	27.8
2	Somewhat helpful	1,030	28.6	290	35.5	1,327	29.9
3	Moderately helpful	699	19.4	146	17.9	849	19.1
4	Very helpful	439	12.2	78	9.6	520	11.7
5	Extremely helpful	373	10.4	54	6.6	431	9.7
	Missing	54	1.5	24	2.9	78	1.8
	Total	3,600	100.0	816	100.0	4,440	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	2.48	0.02	2.30	0.04	2.45	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 47. For supervisors answering "No," opinions of how helpful endurance training would be in improving first-term incumbents' job performance

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Not at all helpful	613	28.3	60	28.4	676	28.3
2	Somewhat helpful	665	30.7	67	31.8	735	30.8
3	Moderately helpful	367	17.0	27	12.8	396	16.6
4	Very helpful	326	15.1	38	18.0	364	15.3
5	Extremely helpful	151	7.0	14	6.6	166	7.0
	Missing	43	2.0	5	2.4	48	2.0
	Total	2,165	100.0	211	100.0	2,385	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	2.40	0.03	2.41	0.09	2.40	0.03

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Slightly fewer female incumbents than male incumbents reported tasks that leave them tired. This result is somewhat puzzling, because female incumbents reported greater problems with endurance than males for all other items in this section. Perhaps the wording of the items in this section resulted in the difference. Although the term "endurance" was defined at the beginning of this section, the term "winded or tired" was not, so it is possible that males and females may have interpreted this phrase differently.

Overall, supervisors reported slightly higher numbers of tasks that left their subordinates tired or winded than did the incumbents themselves, as shown in Table 49. The difference was due to supervisors reporting fewer subordinates who had either one or no tiring tasks, and fewer who had between two and four tiring tasks. Combining the "5–9" and "10 or more" options, the percentage of incumbents and supervisors who reported five or more tiring tasks was about the

same. Female supervisors reported that their subordinates had fewer tasks leaving them tired or winded than did male supervisors. This reporting difference cannot be explained by the fact that male supervisors supervised more first-term subordinates on average. As with the incumbent responses to this item, women may have interpreted the term "winded or tired" differently than men.

Table 48. Incumbent reports of the number of different kinds of tasks first-term incumbents/subordinates perform that leave them especially winded or tired

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	None	2,258	37.7	406	36.2	2,671	37.3
2	1	734	12.3	199	17.8	939	13.1
3	2-4	1,824	30.5	351	31.3	2,194	30.7
4	5-9	527	8.8	67	6.0	598	8.4
5	10 or more	591	9.9	85	7.6	677	9.5
	Missing	56	0.9	13	1.2	75	1.0
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Item Mean & Std.	2.40	0.02	2.30	0.04	2.39	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 49. Supervisor reports of the number of different kinds of tasks first-term incumbents/subordinates perform that leave them especially winded or tired

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	None	1,193	31.2	127	42.2	1,325	32.0
2	1	382	10.0	27	9.0	409	9.9
3	2-4	1,396	36.6	93	30.9	1,499	36.2
4	5-9	402	10.5	27	9.0	429	10.3
5	10 or more	311	8.1	11	3.7	325	7.8
	Missing	134	3.5	16	5.3	158	3.8
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	2.53	0.02	2.19	0.07	2.50	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Physical Fitness/Training

This short section asks about the physical fitness level of first-term personnel and the number of hours per week that they spend in strength and aerobic training. The questions are as follows:

In general, how do you assess your level of physical fitness/the physical fitness of your first-term subordinates in comparison to other military personnel of your/their age and gender? Incumbent response totals to this item appear in Table 50. Virtually half of all incumbent respondents said that their physical fitness relative to others was "Above average" or "Well above average," while fewer than 1 in 10 said that their fitness was either "Below average" or "Well below average." Male incumbents had a much higher opinion of their relative physical condition than females. Over 50 percent of the men rated their own physical fitness as "Above average" or "Well above average," while only about 1 in 3 women did so.

Table 50. Incumbent self-assessments of physical fitness compared to other military personnel of the same age and gender

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Well below average	140	2.3	41	3.7	184	2.6
2	Below average	351	5.9	129	11.5	485	6.8
3	Average	2,427	40.5	560	50.0	3,000	41.9
4	Above average	2,136	35.7	296	26.4	2,444	34.2
5	Well above average	916	15.3	88	7.9	1,008	14.1
	Missing	20	0.3	7	0.6	33	0.5
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	3.56	0.01	3.23	0.03	3.51	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

It is difficult to explain these results logically. Since those chosen for this survey were selected by a random sampling of first-term enlistees, it would be expected that the overall sample would be exactly average in their level of fitness. While there could very well have been differences in the fitness of the respondents and the non-respondents, one would expect that this difference would apply to male and female data equally. But that did not happen with these results, because male incumbents reported themselves much more physically fit than their female counterparts, *even compared only to those of their own age and gender*. Some research has found that males may be overconfident, thus overestimating their performance, while females underestimate theirs (Brigham, 1986; Hyde & Rosenberg, 1980). It is possible, therefore, that male incumbents may have overstated their own physical fitness, while females may have been more self-critical regarding their level of physical fitness. Women have been found to engage in self-derogatory and self-defeating attributions when working with men (Heilman & Kram, 1978). Similarly, other researchers have concluded that women are less likely to attribute positive performance outcomes to ability than are men (Whitley, McHugh, & Frieze, 1986).

The positive bias apparent in the incumbent scores does not occur in overall supervisor responses. Over half of all supervisors judged their first-term subordinates as having average physical fitness, and the average score for this item was exactly at the scale midpoint, 3.00. However, male supervisors judged their subordinates as more physically fit than did the female supervisors. This may have been a function of the types of jobs that the subordinates had. Analysis that adjusted the fitness results by occupational specialty found that this explained the

difference between male and female supervisors' reports of their subordinates' physical fitness. Supervisor percentages for this item are shown in Table 51.

Table 51. Supervisor assessments of first-term incumbent physical fitness compared to other military personnel of the same age and gender

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Well below average	220	5.8	28	9.3	251	6.1
2	Below average	588	15.4	49	16.3	639	15.4
3	Average	1,946	51.0	153	50.8	2,108	50.9
4	Above average	700	18.3	44	14.6	747	18.0
5	Well above average	195	5.1	9	3.0	205	4.9
	Missing	169	4.4	18	6.0	195	4.7
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	3.02	0.01	2.85	0.05	3.00	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

On average, how many hours per week do you/your first-term subordinates spend in strength training (e.g., lifting weights, using resistance machines, etc.)? As shown in Table 52, more than 2 out of 3 incumbents said that they spent at least 1 hour per week conducting strength training, and nearly half said that they spend 3 hours or more in strength training. Approximately 1 in 4 said they spent 5 or more hours per week in strength training, while fewer than 1 in 5 said that they did no strength training at all. In general, female incumbents said they spent less time in strength training than their male counterparts. About 1 in 4 said they did no strength training, and another 1 in 6 said they spent less than an hour per week in strength training.

Table 52. Incumbent reports of hours per week they spend in strength training

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No time	1,070	17.9	270	24.1	1,347	18.8
2	Less than 1 hour	734	12.3	198	17.7	937	13.1
3	At least 1 hour, but less than 3 hours	1,213	20.3	298	26.6	1,517	21.2
4	At least 3 hours, but less than 5 hours	1,307	21.8	216	19.3	1,532	21.4
5	5 hours or more	1,633	27.3	132	11.8	1,775	24.8
	Missing	33	0.6	7	0.6	46	0.6
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 3.29	Std. 0.02	Mean 2.77	Std. 0.04	Mean 3.20	Std. 0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Supervisors thought their subordinates spent quite a bit less time doing strength training than did the subordinates themselves, as a comparison of Tables 52 and 53 indicates. The greatest discrepancy was in the "5 hours or more" category, with fewer than 7 percent of supervisors (about 1 in 15) saying their subordinates spent this much time doing strength training, compared to about 1 in 4 incumbents choosing this category. Accompanying increases occurred in the "Less than 1 hour" and "At least 1 hour, but less than 3 hours" categories. Conversely, supervisors may not be aware of the amount of strength training that their subordinates perform, some of which may be done during non-working hours. Male and female supervisors did not differ statistically in their judgments of the hours of subordinate strength training.

Table 53. Supervisor reports of hours per week spent by first-term incumbents in strength training

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No time	645	16.9	58	19.3	705	17.0
2	Less than 1 hour	826	21.6	67	22.3	897	21.6
3	At least 1 hour, but less than 3 hours	1,207	31.6	79	26.2	1,290	31.1
4	At least 3 hours, but less than 5 hours	726	19.0	57	18.9	790	19.1
5	5 hours or more	257	6.7	19	6.3	277	6.7
	Missing	157	4.1	21	7.0	186	4.5
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 2.76	Std. 0.02	Mean 2.69	Std. 0.07	Mean 2.76	Std. 0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

On average, how many hours per week do you/your first-term subordinates spend in aerobic training (e.g., running, cycling, swimming, etc.)? Incumbents stated that they spend slightly more time in endurance training than they do in strength training, as can be seen by comparing Tables 52 and 54. About 3 out of 4 incumbents said that they spent at least an hour per week doing aerobic training, and half said they did 3 or more hours training aerobically. Only 1 in 8 said they did no aerobic training at all. In contrast to the strength training results, female incumbents said they did as much aerobic training as the men.

Table 54. Incumbent reports of hours per week they spend in aerobic training

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No time	746	12.5	132	11.8	885	12.4
2	Less than 1 hour	719	12.0	119	10.6	841	11.8
3	At least 1 hour, but less than 3 hours	1,489	24.9	299	26.7	1,799	25.1
4	At least 3 hours, but less than 5 hours	1,640	27.4	329	29.3	1,980	27.7
5	5 hours or more	1,373	22.9	233	20.8	1,611	22.5
	Missing	23	0.4	9	0.8	38	0.5
	Total	5,990	100.0	1,121	100.0	7,154	100.0
	Mean and Std. Error	Mean 3.36	Std. 0.02	Mean 3.37	Std. 0.04	Mean 3.36	Std. 0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Supervisors echoed the subordinates' reports that they spend more time performing aerobic exercise than strength training, as can be seen by comparing Tables 53 and 55. While supervisors attributed somewhat fewer hours than incumbents to aerobic training, 2 out of 3 said that their first-term subordinates spent at least an hour per week doing aerobic exercise. Female supervisors attributed somewhat more weekly hours of aerobic training to their subordinates than did males. In particular, in combining the top two response categories, about 35 percent of male supervisors said their subordinates spent 3 or more hours per week in aerobic exercise, while female supervisors credited nearly 45 percent of their subordinates with that much aerobic exercise. Analysis determined that the difference between male and female judgments of time spent in aerobic training was due to differences in jobs these supervisors had rather than a difference in the perception of males and females.

Table 55. Supervisor reports of hours per week spent by first-term incumbents in aerobic training

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No time	489	12.8	37	12.3	530	12.8
2	Less than 1 hour	595	15.6	39	13.0	636	15.3
3	At least 1 hour, but less than 3 hours	1,219	31.9	73	24.3	1,296	31.3
4	At least 3 hours, but less than 5 hours	1,054	27.6	106	35.2	1,168	28.2
5	5 hours or more	303	7.9	28	9.3	331	8.0
	Missing	158	4.1	18	6.0	184	4.4
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 3.02	Std. 0.02	Mean 3.17	Std. 0.07	Mean 3.03	Std. 0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

General Assessment

The final section of the survey to be discussed in this report presents incumbents' and supervisors' level of agreement or disagreement with a series of statements dealing with strength and performance issues. Both incumbents and supervisors answered five of these items. Another two items appeared only on the incumbent survey, and two more appeared only on the supervisor survey. The statements are as follows:

Most of the time I/the first-term personnel I supervise typically have adequate strength to get the job done. Over 93 percent of incumbents either agreed or strongly agreed with this statement, as shown in Table 56. Male incumbents expressed more confidence than females in having strength to do the job. Although nearly as many women agreed or strongly agreed with the statement that they had adequate strength (about 91% versus about 94%), men were more likely than were women (about 60% versus about 45%) to say that they *strongly* agreed. Analysis

determined that the occupational specialties occupied by males and females could not account for this difference.

While nearly 3 out of 4 supervisors agreed or strongly agreed that their subordinates had adequate strength for their work, only 21 percent strongly agreed with the statement. Thus, supervisors expressed less confidence in the adequacy of their subordinates' strength than did the incumbents themselves. Male and female supervisors did not differ in their responses to this item. Supervisor responses are shown in Table 57.

Table 56. Incumbent assessments of whether they have adequate strength to get the job done

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	92	1.5	15	1.3	108	1.5
2	Disagree	73	1.2	31	2.8	104	1.5
3	Neither agree nor	171	2.9	48	4.3	220	3.1
4	Agree	1,884	31.5	502	44.8	2,399	33.5
5	Strongly Agree	3,734	62.3	514	45.9	4,270	59.7
	Missing	36	0.6	11	1.0	53	0.7
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	4.53	0.01	4.32	0.02	4.50	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 57. Supervisor assessments of whether first-term incumbents have adequate strength to get the job done

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	78	2.0	7	2.3	86	2.1
2	Disagree	260	6.8	20	6.6	281	6.8
3	Neither agree nor	473	12.4	39	13.0	512	12.4
4	Agree	2,034	53.3	146	48.5	2,191	52.9
5	Strongly Agree	793	20.8	71	23.6	869	21.0
	Missing	180	4.7	18	6.0	206	5.0
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Item Mean & Std.	3.88	0.01	3.90	0.06	3.88	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

If needed I can find/servicemembers find alternative, acceptable ways to accomplish my/their physically demanding tasks. Table 58 illustrates incumbents' faith in their own ingenuity. Over 86 percent agreed or strongly agreed with the statement, while fewer than 1 in 20

disagreed. Male and female incumbents expressed essentially the same degree of confidence that they could find alternative ways to do their work.

As was the case with so many items, supervisors were somewhat less positive than their subordinates, as a comparison of Tables 58 and 59 shows. Nevertheless, 3 out of 4 supervisors agreed or strongly agreed that their subordinates were able to find ways to complete their work if stymied by the physical demands of the job. Fewer than 1 in 12 supervisors either disagreed or strongly disagreed with the statement. Male and female supervisors were in essential agreement in their responses to this item.

Table 58. Incumbent assessments of whether they can find alternative, acceptable ways to accomplish physically demanding tasks, if needed

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	139	2.3	12	1.1	151	2.1
2	Disagree	165	2.8	19	1.7	189	2.6
3	Neither agree nor disagree	494	8.2	79	7.0	574	8.0
4	Agree	2,329	38.9	529	47.2	2,873	40.2
5	Strongly Agree	2,825	47.2	470	41.9	3,311	46.3
	Missing	38	0.6	12	1.1	56	0.8
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	4.27	0.01	4.29	0.02	4.27	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

The response rates to this item can be compared with the responses to the final item in the Background Information section (see Table 13) which asked supervisors how many subordinates had retrained or considered retraining in the past 12 months due to difficulty meeting strength requirements of the job. While these questions are worded differently, the results appear to be compatible. In the earlier item for supervisors, about 64 percent said that none of their subordinates had retrained or considered retraining because of job strength requirements, while in the current item 62 percent of incumbents strongly disagreed with the statement that they had considered retraining because of strength requirements.

Table 59. Supervisor assessments of whether first-term incumbents can find alternative, acceptable ways to accomplish physically demanding tasks, if needed

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	67	1.8	10	3.3	78	1.9
2	Disagree	228	6.0	10	3.3	239	5.8
3	Neither agree nor	487	12.8	33	11.0	522	12.6
4	Agree	2,206	57.8	167	55.5	2,385	57.5
5	Strongly Agree	670	17.5	64	21.3	736	17.8
	Missing	160	4.2	17	5.6	185	4.5
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	3.87	0.01	3.93	0.05	3.87	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

During the past 12 months, my difficulty in meeting strength requirements of my MOS/Rating/AFSC caused me to consider retraining (i.e., change MOS/Rating/AFSC). (Incumbents only). Incumbents were asked to state whether they had ever considered changing their occupational specialty due to the strength demands of the job. Only about 1 in 10 agreed or strongly agreed with the statement, while nearly 4 out of 5 disagreed or strongly disagreed. Female incumbents were somewhat more likely than males to indicate that they had considered retraining. About 1 in 8 agreed or strongly agreed that they had considered retraining due to strength requirements of their job, while fewer than 3 of 4 disagreed or strongly disagreed. Item results for incumbents are shown in Table 60.

Table 60. Incumbent assessments of considering a change in occupational specialty, due to difficulty in meeting strength requirements of current occupational specialty during the past 12 months

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	3,785	63.2	588	52.5	4,389	61.4
2	Disagree	1,030	17.2	237	21.1	1,275	17.8
3	Neither agree nor	520	8.7	133	11.9	658	9.2
4	Agree	251	4.2	67	6.0	321	4.5
5	Strongly Agree	345	5.8	80	7.1	429	6.0
	Missing	59	1.0	16	1.4	82	1.1
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	1.71	0.02	1.93	0.04	1.75	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Lack of physical strength in our work team/of my first-term subordinates rarely keeps us from successfully performing our mission. Comparison of Table 61 with Tables 56 and 58 reveals that responses to this item were somewhat less positive than those to the first two items in this section. Slightly fewer than 3 in 5 incumbents either agreed or strongly agreed with the statement, and 1 in 4 disagreed or strongly disagreed. More had confidence in their own ability than in the team's ability. The team focus may have induced the more cautious response pattern for this item compared with the first two items.

Female incumbents were *more* likely to believe that lack of physical strength was *not* a deterrent to mission performance than were males. Perhaps the reversal in response patterns for this item compared with the first two items in this section was due to the fact that this item asked about the team, while the first two items dealt with individual performance.

About 2 of 3 supervisors agreed or strongly agreed that lack of strength was no deterrent to successful mission performance, as seen in Table 62. While strongly positive, it is again somewhat less so than supervisor responses to the first two items in this section. As with the incumbents, this caution may be due to relating strength to mission performance. Nevertheless, fewer than 15 percent thought that lack of physical strength had a negative effect on mission performance. Male and female supervisors did not differ statistically in their responses to this item.

Table 61. Incumbent assessments of whether lack of first-term incumbent strength does not keep their unit from successfully performing its mission

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	950	15.9	113	10.1	1,066	14.9
2	Disagree	679	11.3	117	10.4	802	11.2
3	Neither agree nor	822	13.7	155	13.8	980	13.7
4	Agree	1,511	25.2	339	30.2	1,864	26.1
5	Strongly Agree	1,957	32.7	381	34.0	2,349	32.8
	Missing	71	1.2	16	1.4	93	1.3
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	3.48	0.02	3.69	0.04	3.51	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 62. Supervisor assessments of whether lack of first-term incumbent strength does not keep their unit from successfully performing its mission

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	170	4.5	13	4.3	184	4.4
2	Disagree	384	10.1	23	7.6	411	9.9
3	Neither agree nor	521	13.6	38	12.6	560	13.5
4	Agree	1,650	43.2	125	41.5	1,782	43.0
5	Strongly Agree	904	23.7	84	27.9	993	24.0
	Missing	189	5.0	18	6.0	215	5.2
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	3.75	0.02	3.86	0.06	3.76	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness. Table 63 shows that nearly 2 out of 3 incumbents agreed or strongly agreed with this statement, while only 1 in 10 disagreed or strongly disagreed. Evidently, incumbents believe there is room for improvement in the way jobs are designed or engineered. This position was evident for both male and female incumbents, whose response patterns were essentially the same.

Though supervisors did not believe quite as strongly as incumbents that jobs need to be reviewed and reengineered, still nearly 3 out of 5 agreed or strongly agreed with the statement, as seen in Table 64. Less than 15 percent disagreed or strongly disagreed. As with incumbents, the responses for male and female supervisors did not differ.

If there were job performance problems related to physical strength, I would learn about them from those I supervise. (Supervisors only). Supervisors believe very strongly that they would become aware of performance problems resulting from subordinates' strength deficiencies. Nearly 80 percent of supervisors agreed or strongly agreed with this statement, and only 5 percent disagreed or strongly disagreed. Male and female supervisors did not differ in their responses. The response percentages for this item are shown in Table 65.

Table 63. Incumbent opinions regarding whether jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	318	5.3	40	3.6	359	5.0
2	Disagree	316	5.3	49	4.4	367	5.1
3	Neither agree nor	1,511	25.2	269	24.0	1,785	25.0
4	Agree	1,997	33.3	435	38.8	2,446	34.2
5	Strongly Agree	1,796	30.0	310	27.7	2,121	29.6
	Missing	52	0.9	18	1.6	76	1.1
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	3.78	0.01	3.84	0.03	3.79	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 64. Supervisor opinions regarding whether jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	205	5.4	13	4.3	220	5.3
2	Disagree	363	9.5	23	7.6	387	9.3
3	Neither agree nor	837	21.9	57	18.9	897	21.6
4	Agree	1,418	37.1	127	42.2	1,555	37.5
5	Strongly Agree	823	21.6	64	21.3	889	21.4
	Missing	172	4.5	17	5.6	197	4.8
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Item Mean & Std.	3.63	0.02	3.73	0.06	3.63	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

If I learned of job performance problems related to physical strength, I would be in a position to do something to improve the situation. (Supervisors only). Stemming from the previous item, supervisors were asked, after learning of strength problems, whether they would be able to act on their knowledge. The results are shown in Table 66. While they were not quite as positive about being able to resolve problems as they were about learning about them, 3 out of 4 supervisors agreed or strongly agreed with the statement. A little over 10 percent disagreed or strongly disagreed, more than double the percentage who disagreed with the previous item. Male and female supervisors provided approximately the same response profile to this item.

Table 65. Supervisor opinions regarding whether they would learn about job performance problems relating to the physical strength of those they supervise

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	61	1.6	4	1.3	65	1.6
2	Disagree	126	3.3	13	4.3	141	3.4
3	Neither agree nor	431	11.3	31	10.3	462	11.1
4	Agree	1,912	50.1	143	47.5	2,067	49.9
5	Strongly Agree	1,113	29.2	92	30.6	1,209	29.2
	Missing	175	4.6	18	6.0	201	4.8
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	4.07	0.01	4.08	0.05	4.07	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Table 66. Supervisor opinions regarding whether they would be able to improve the situation if there were job performance problems related to physical strength

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	125	3.3	11	3.7	137	3.3
2	Disagree	279	7.3	28	9.3	309	7.5
3	Neither agree nor	439	11.5	33	11.0	473	11.4
4	Agree	1,656	43.4	127	42.2	1,790	43.2
5	Strongly Agree	1,155	30.3	85	28.2	1,247	30.1
	Missing	164	4.3	17	5.6	189	4.6
	Total	3,818	100.0	301	100.0	4,145	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	3.94	0.02	3.87	0.06	3.94	0.02

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

I am confident that I can perform the physically demanding tasks in my job and meet mission requirements. (Incumbents only). Incumbents expressed a great deal of confidence in their ability to perform their jobs and meet mission requirements, regardless of the physical demands entailed in the work. As Table 67 shows, over 90 percent of incumbents agreed or strongly agreed with the statement, and fewer than 1 in 30 disagreed or strongly disagreed. Male incumbents expressed much more confidence in their ability to perform physically demanding work than did females. The greatest difference was in the percentages responding "strongly agree" to the statement, which was about 2 out of 3 among males, but fewer than half of the females. In addition, nearly twice as many women responded "disagree" or "strongly disagree" as did males. Female incumbents are evidently less emphatic than males about their perceived ability to meet the physical challenges of their jobs.

Table 67. Incumbent opinions regarding whether they can perform the physically demanding tasks in their job and meet mission requirements

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	83	1.4	17	1.5	102	1.4
2	Disagree	81	1.4	49	4.4	131	1.8
3	Neither agree nor	229	3.8	98	8.7	329	4.6
4	Agree	1,569	26.2	411	36.7	1,988	27.8
5	Strongly Agree	3,974	66.3	529	47.2	4,527	63.3
	Missing	54	0.9	17	1.5	77	1.1
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Item Mean & Std.	4.56	0.01	4.26	0.03	4.51	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

I am confident that my work team/the service members I supervise can perform the physically demanding tasks in my/their job and meet mission requirements. The final multiple choice item asked incumbents whether they believed that their work team could perform physically demanding tasks and meet mission requirements. For incumbents, this item parallels the preceding item asking about individual performance. Overall, incumbents again expressed a great deal of confidence in their responses, but somewhat less than for the previous statement, as the data in Table 68 indicate. About 87 percent either agreed or strongly agreed with the statement, while fewer than 5 percent disagreed or strongly disagreed. Contrary to results of the item about individual performance above, there was no difference in the responses of male and female incumbents when asked about team performance.

Table 68. Incumbent opinions regarding whether service members' work teams can perform physically demanding tasks in their jobs and meet mission requirements

Scale Value	Response	Incumbents					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	117	2.0	14	1.2	131	1.8
2	Disagree	172	2.9	21	1.9	196	2.7
3	Neither agree nor	462	7.7	97	8.7	563	7.9
4	Agree	1,934	32.3	408	36.4	2,353	32.9
5	Strongly Agree	3,261	54.4	567	50.6	3,847	53.8
	Missing	44	0.7	14	1.2	64	0.9
	Total	5,990	100.0	1,121	100.0	7,154	100.0
		Mean	Std.	Mean	Std.	Mean	Std.
	Mean and Std. Error	4.35	0.01	4.35	0.02	4.35	0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

The results of these last two items provide an interesting insight into responses about oneself versus teams. While males expressed *less* confidence in the team than in their individual ability, females expressed *more* confidence in the team than in themselves. Team members may informally perform a bit of mental calculus and derive a level of confidence in the team that is roughly an average of the physical ability of the individual team members. Alternatively, it may be that less self-confident individuals actually become more confident in a team environment, while individuals who are less self-confident express less confidence in the team as a whole.

Supervisors expressed slightly less confidence than incumbents in the ability of subordinates' work teams to perform physically demanding work and meet mission requirements, as a comparison of Tables 68 and 69 shows. About 3 out of 4 supervisors agreed or strongly agreed with the statement, while about 1 in 15 disagreed or strongly disagreed. There was no difference in male and female supervisor responses.

Table 69. Supervisor opinions regarding whether service members' work teams can perform physically demanding tasks in their jobs and meet mission requirements

Scale Value	Response	Supervisors					
		Males		Females		Total	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Strongly disagree	69	1.8	7	2.3	77	1.9
2	Disagree	180	4.7	21	7.0	201	4.8
3	Neither agree nor disagree	496	13.0	38	12.6	535	12.9
4	Agree	1,732	45.4	117	38.9	1,858	44.8
5	Strongly Agree	1,167	30.6	100	33.2	1,274	30.7
	Missing	174	4.6	18	6.0	200	4.8
	Total	3,818	100.0	301	100.0	4,145	100.0
	Mean and Std. Error	Mean 4.03	Std. 0.02	Mean 4.00	Std. 0.06	Mean 4.03	Std. 0.01

Notes: 1. Male + female frequencies may not equal total frequencies due to missing gender data.
2. Percentages may not total to 100 percent due to rounding.

Conclusions and Recommendations

Conclusions

The results of the *DOD Physical Strength and Job Performance Survey* provide a positive picture regarding physical strength, physical endurance, over-exertion injuries, and physical fitness. In spite of a minority of incumbents who reported concerns, survey results indicate that problems are not pervasive, and appear not to have a serious effect on job performance or unit readiness. Supervisors' responses, though usually slightly less positive than incumbents, are consistent with incumbent responses.

Although these results are encouraging, they do not invite complacency regarding physical strength or the related areas of physical endurance or over-exertion injuries in the military. While the survey results provide support for the assertions of the Services that there are no serious

problems with physical strength and fitness in general, it is nevertheless important that the Services remain vigilant.

Recommendations

It is recommended that the Services periodically survey physical strength and job performance via a survey similar to the one reported on here. In order to reduce the burden on the servicemembers and to increase the response rates, emerging survey technologies should be investigated. In particular, web-based survey methodologies may reduce the turnaround time between survey deployment and analysis and reporting of the results.

It is further recommended that the Services begin the development of valid and reliable strength and endurance tests for all occupational specialties with at least moderately heavy strength requirements and for jobs with requirements for greater than normal aerobic or endurance capacity. These tests should be based on job analysis of the occupational specialties to ensure that the strength and endurance requirements are valid. Prospective candidates for these occupational specialties would be tested to ensure their abilities to fulfill the physical requirements of the job. Current data do not suggest poor person-job matches and would not support physical fitness testing for this purpose as cost-efficient. It may therefore be much more productive to design incumbent diagnostics and develop individualized training programs.

References

Brigham, J. C. (1986). *Social psychology*. Boston: Little, Brown.

General Accounting Office. (1996, July). *Physically Demanding Jobs: Services Have Little Data on Ability of Personnel to Perform*. Washington, DC: Author.

Heilman, M. E., & Kram, K. E. (1978). Self-derogating behavior in women–Fixed or flexible: The effects of co-worker's sex. *Organizational Behavior and Human Performance*, *22*, 497-507.

Hyde, J. S., & Rosenberg, B, G. (1980). *Half the human experience: The psychology of women* (2nd ed.). Lexington, MA: D. C. Heath.

Whitley, B. E., McHugh, M. C., & Frieze, I. H. (1986). Assessing the theoretical models for sex differences in causal attributions of success and failure. In J. S. Hyde & M. C. Linn (Eds.), *The psychology of gender: Advances through meta-analysis* (pp. 102-135). Baltimore: Johns Hopkins.

Appendix A
Department of Defense Strength and Performance Survey

Army Strength and Performance Survey

Incumbent Version

The purpose of this special occupational survey is to help us determine if individuals are experiencing problems in physically demanding jobs. We need your honest feedback about your ability to meet the physical demands of your Military Occupational Specialty (MOS).

Privacy Act Statement

In accordance with the Privacy Act of 1974 (Public Law 93-579), this notice informs you of the purpose of the survey and how the findings will be used. Please read it carefully.

(1) Authority: 10 U.S.C. 136 and 2358. (2) Principal Purpose: Information collected in this survey will be used to respond to the General Accounting Office with information about physical strength and performance in physically demanding jobs. This information may also assist in formulating policies for enlistment standards. Some findings may be published in professional journals, or reported in manuscripts presented at conferences, symposia, and scientific meetings. In no case will the data be reported for identifiable individuals. (3) Routine Uses: None. (4) Disclosure: Providing information on this survey is voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative. Your survey instrument will be treated as confidential. Identifying information will be used only by persons engaged in, and for purposes of, the survey. Only group statistics will be reported.

* **USE NO. 2 PENCIL ONLY.**
* **Do NOT use ink, ballpoint or felt tip pens.**
* **Erase cleanly and completely any changes you make.**
* **Make black marks that fill the circle.**
* **Do not make stray marks on the form.**
* **Do not fold, tear, or mutilate this form.**

WRONG MARKS: 

RIGHT MARK: ●

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Background Information

1. **What is your Military Occupational Specialty (MOS)?**

   - ○ Infantryman (11B)
   - ○ Armor Crewman (19K)
   - ○ Radio Operator-Maintainer (31C)
   - ○ Chemical Operations Specialist (54B)
   - ○ Track Vehicle Repairer (63H)
   - ○ Motor Transport Operator (88M)
   - ○ Medical Specialist (91B)
   - ○ Food Service Specialist (92G, formerly 94B)
   - ○ Unit Supply Specialist (92Y)
   - ○ Military Police (95B)
   - ○ Other

2. **What is your paygrade?**

   - ○ E-1
   - ○ E-2
   - ○ E-3
   - ○ E-4
   - ○ E-5 or above

3. **What is your gender?**

   - ○ Male
   - ○ Female

4. **What type of UNIT are you assigned to?**

   - ○ TOE (a unit with a wartime mission)
   - ○ TDA (a unit with a primarily peacetime mission)
   - ○ Do not know

5. **How long have you been in your current MOS?**

   - ○ Less than 4 years
   - ○ At least 4 years, but less than 8 years
   - ○ At least 8 years, but less than 12 years
   - ○ At least 12 years, but less than 16 years
   - ○ 16 years or more

6. **Have you changed your MOS due to difficulty in meeting the strength demands of your work?**

   - ○ Yes
   - ○ No, continue at question 7

   → If yes, how long have you been in your **new** MOS?

   - ○ Less than 3 months
   - ○ At least 3 months, but less than 6 months
   - ○ At least 6 months, but less than 9 months
   - ○ At least 9 months, but less than 12 months

Note: If you answered "yes" to question 6, please answer the remaining items in the survey only for the time you have been in your current MOS.

Over-Exertion Injuries

DEFINITION:
For the following questions, an **over-exertion injury** is defined as a physical injury that may or may not require medical attention that resulted because an individual did not have the physical strength to perform a work-related task.

please continue with question 7...

7. **During the past 12 months, how often have you been unable to perform the full range of your duties because of a work-related over-exertion injury?**

   - ○ Never
   - ○ 1 or 2 times
   - ○ 3 to 5 times
   - ○ 6 to 12 times
   - ○ More than 12 times

8. **During the past 12 months, what effect has over-exertion had on work-related injuries and/or safety problems?**

   - ○ Over-exertion has not been a problem for me on the job
   - ○ I have sometimes had to over-exert, but it did not result in work-related injuries and/or safety problems
   - ○ I have had minor injuries and/or safety problems (no negative impact to people, equipment, or resources) due to my over-exertion
   - ○ I have had work-related injuries and/or safety problems (resulting in 8 labor hours or less of lost productivity) due to my over-exertion
   - ○ I have had major work-related injuries and/or safety problems (resulting in more than 8 labor hours of lost productivity) due to my over-exertion

9. **During the past 12 months, how much additional work were you or your co-workers expected to perform because another co-worker experienced an over-exertion injury?**

   - ○ Not applicable
   - ○ No additional work
   - ○ Less than 8 hours
   - ○ 8-16 hours
   - ○ 17-40 hours
   - ○ More than 40 hours

Physical Strength and Job Performance

10. **How many times in the past 12 months did you lack the physical strength to complete a task (e.g., were physically unable to lift an object), typically not performed as a team task, while working in the job?**

    - ○ Never
    - ○ 1-3 times
    - ○ 4-10 times
    - ○ 11-20 times
    - ○ More than 20 times

11. **During the past 12 months, what impact has lack of physical strength had on your ability to perform your work tasks?**

    - ○ No impact; my physical strength has been sufficient to perform all my tasks
    - ○ Minimal impact; I perform almost all tasks without difficulty
    - ○ Some impact; I perform most tasks without difficulty
    - ○ Significant impact; I have difficulty performing many tasks
    - ○ Major impact; I have difficulty performing most tasks

12. **What generally happened if you lacked the strength to perform a physically demanding individual (not team) task.**

- ○ Not applicable; I have always had the strength to perform my physically demanding tasks
- ○ The task was not done
- ○ I got someone else to complete the task
- ○ My supervisor assigned the task to someone else
- ○ I worked with one or more individuals and/or equipment (tools) to perform the task
- ○ I found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

13. **If the task was not done or completion of the work was delayed for a substantial period of time due to lack of physical strength, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

DEFINITION:
For the following questions, **Mission Readiness** refers to a unit being able to perform its assigned mission(s) effectively. For those units that have a combat mission, mission readiness refers to the ability to participate effectively and efficiently in combat, contingency, and exercise operations.

14. **During the past 12 months, what impact has lack of sufficient physical strength on your part had on mission readiness?**

- ○ No impact on mission readiness
- ○ Minimal impact on mission readiness
- ○ Some impact on mission readiness
- ○ Significant impact on mission readiness
- ○ Don't know

15. **Does your unit provide job-related strength training?**

- ○ Yes, continue at 15a
- ○ No, continue at 15b

15a. If you answered "Yes", how helpful is this training in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

15b. If you answered "No", how helpful would this training be in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

Physical Endurance and Job Performance

DEFINITION:
For the following questions, **Endurance** is defined as the ability to carry on with work despite the physical demands of the job - not necessarily related to strength. Endurance is related to physically demanding repetitive duty such as running or repetitive lifting.

16. **How many times in the past 12 months did you lack the endurance to complete a task (e.g., were especially winded or tired), typically not performed as a team task, while working in your job?**

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

17. **What generally happened if you lacked the endurance to perform a physically demanding individual (not team) task?**

- ○ Not applicable; I have always had the endurance to perform physically demanding tasks
- ○ The task was not done
- ○ I got someone else to complete the task
- ○ My supervisor assigned the task to someone else
- ○ I worked with one or more individuals and/or equipment (tools) to perform the task
- ○ I found a different way to complete the task satisfactorily which did not require other individuals or nonstandard tools (i.e., came up with a "work around")

18. **If the task was not done or completion of the work was delayed for a substantial period of time due to lack of endurance, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

19. **Does your unit provide job-related endurance training?**

- ○ Yes, continue at 19a
- ○ No, continue at 19b

19a. If you answered "Yes", how helpful is this training in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

please continue on next page...

19b. If you answered "No", how helpful would this training be in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

20. How many different kinds of tasks do you perform as part of your job that leave you especially winded or tired (e.g., repetitive lifting or lift-and-carry tasks)?

- ○ None
- ○ 1
- ○ 2-4
- ○ 5-9
- ○ 10 or more

Physical Fitness/Training

21. How do you assess your level of physical fitness in comparison to other military personnel of your age and gender?

- ○ Well below average
- ○ Below average
- ○ Average
- ○ Above average
- ○ Well above average

22. On average, how many hours per week do you spend in strength training (e.g., lifting weights, using resistance machines, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

23. On average, how many hours per week do you spend in aerobic training (e.g., running, cycling, swimming, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

General Assessment

Please rate how strongly you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
24. Most of the time I have adequate strength to get the job done	○	○	○	○	○
25. If needed, I can find alternative, acceptable ways to accomplish my physically demanding tasks	○	○	○	○	○
26. During the past 12 months, my difficulty in meeting strength requirements of my MOS caused me to consider retraining (i.e., change MOS)	○	○	○	○	○
27. Lack of physical strength in our work team rarely keeps us from successfully performing our mission	○	○	○	○	○
28. Jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness	○	○	○	○	○
29. I am confident that I can perform the physically demanding tasks in my job and meet mission requirements	○	○	○	○	○
30. I am confident that my work team can perform the physically demanding tasks in our job and meet mission requirements	○	○	○	○	○

Open-ended Responses

31. Identify the three tasks that require the most strength in your job. Please be specific and identify the objects/equipment involved in the tasks.

a. _____

b. _____

c. _____

32. Identify the three tasks that require the most endurance in your job. For any tasks that are lift or lift-and-carry tasks, write "L" after the task.

a. _____

b. _____

c. _____

Please write any comments on a separate piece of paper (include your MOS).

Navy Strength and Performance Survey

Incumbent Version

The purpose of this special occupational survey is to help us determine if individuals are experiencing problems in physically demanding jobs. We need your honest feedback about your ability to meet the physical demands of your Rating.

Privacy Act Statement

In accordance with the Privacy Act of 1974 (Public Law 93-579), this notice informs you of the purpose of the survey and how the findings will be used. Please read it carefully.

(1) Authority: 10 U.S.C. 136 and 2358. (2) Principal Purpose: Information collected in this survey will be used to respond to the General Accounting Office with information about physical strength and performance in physically demanding jobs. This information may also assist in formulating policies for enlistment standards. Some findings may be published in professional journals, or reported in manuscripts presented at conferences, symposia, and scientific meetings. In no case will the data be reported for identifiable individuals. (3) Routine Uses: None. (4) Disclosure: Providing information on this survey is voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative. Your survey instrument will be treated as confidential. Identifying information will be used only by persons engaged in, and for purposes of, the survey. Only group statistics will be reported.

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* **Make black marks that fill the circle.**
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WRONG MARKS: ⊘ ⊗ ◒ ⊙

RIGHT MARK: ●

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Background Information

1. What is your Rating?

- ○ Aviation Boatswain's Mate (AB) (includes ABE, ABF, ABH)
- ○ Aviation Ordnanceman (AO)
- ○ Aviation Support Equipment Technician (AS)
- ○ Boatswain's Mate (BM)
- ○ Builder (BU)
- ○ Damage Controlman (DC)
- ○ Electrician's Mate (EM)
- ○ Hospital Corpsman (HM)
- ○ Hull Technician (HT)
- ○ Torpedoman's Mate (TM)
- ○ Other

2. What is your paygrade?

- ○ E-1
- ○ E-2
- ○ E-3
- ○ E-4
- ○ E-5 or above

3. What is your gender?

- ○ Male
- ○ Female

4. How long have you been in your current Rating?

- ○ Less than 4 years
- ○ At least 4 years, but less than 8 years
- ○ At least 8 years, but less than 12 years
- ○ At least 12 years, but less than 16 years
- ○ 16 years or more

5. Have you changed your Rating due to difficulty in meeting the strength demands of your work?

- ○ Yes
- ○ No, continue at question 6

→ If yes, how long have you been in your **new** Rating?

- ○ Less than 3 months
- ○ At least 3 months, but less than 6 months
- ○ At least 6 months, but less than 9 months
- ○ At least 9 months, but less than 12 months

Note: If you answered "yes" to question 5, please answer the remaining items in the survey only for the time you have been in your current Rating.

Over-Exertion Injuries

DEFINITION:
For the following questions, an **over-exertion injury** is defined as a physical injury that may or may not require medical attention that resulted because an individual did not have the physical strength to perform a work-related task.

please continue with question 6...

6. During the past 12 months, how often have you been unable to perform the full range of your duties because of a work-related over-exertion injury?

- ○ Never
- ○ 1 or 2 times
- ○ 3 to 5 times
- ○ 6 to 12 times
- ○ More than 12 times

7. During the past 12 months, what effect has over-exertion had on work-related injuries and/or safety problems?

- ○ Over-exertion has not been a problem for me on the job
- ○ I have sometimes had to over-exert, but it did not result in work-related injuries and/or safety problems
- ○ I have had minor injuries and/or safety problems (no negative impact to people, equipment, or resources) due to my over-exertion
- ○ I have had work-related injuries and/or safety problems (resulting in 8 labor hours or less of lost productivity) due to my over-exertion
- ○ I have had major work-related injuries and/or safety problems (resulting in more than 8 labor hours of lost productivity) due to my over-exertion

8. During the past 12 months, how much additional work were you or your co-workers expected to perform because another co-worker experienced an over-exertion injury?

- ○ Not applicable
- ○ No additional work
- ○ Less than 8 hours
- ○ 8-16 hours
- ○ 17-40 hours
- ○ More than 40 hours

Physical Strength and Job Performance

9. How many times in the past 12 months did you lack the physical strength to complete a task (e.g., were physically unable to lift an object), typically not performed as a team task, while working in the job?

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

10. During the past 12 months, what impact has lack of physical strength had on your ability to perform your work tasks?

- ○ No impact; my physical strength has been sufficient to perform all my tasks
- ○ Minimal impact; I perform almost all tasks without difficulty
- ○ Some impact; I perform most tasks without difficulty
- ○ Significant impact; I have difficulty performing many tasks
- ○ Major impact; I have difficulty performing most tasks

11. What generally happened if you lacked the strength to perform a physically demanding individual (not team) task.

- ○ Not applicable; I have always had the strength to perform my physically demanding tasks
- ○ The task was not done
- ○ I got someone else to complete the task
- ○ My supervisor assigned the task to someone else
- ○ I worked with one or more individuals and/or equipment (tools) to perform the task
- ○ I found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

12. If the task was not done or completion of the work was delayed for a substantial period of time due to lack of physical strength, what was the overall effect?

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

DEFINITION:
For the following questions, **Mission Readiness** refers to a unit being able to perform its assigned mission(s) effectively. For those units that have a combat mission, mission readiness refers to the ability to participate effectively and efficiently in combat, contingency, and exercise operations.

13. During the past 12 months, what impact has lack of sufficient physical strength on your part had on mission readiness?

- ○ No impact on mission readiness
- ○ Minimal impact on mission readiness
- ○ Some impact on mission readiness
- ○ Significant impact on mission readiness
- ○ Don't know

14. Does your unit provide job-related strength training?

- ○ Yes, continue at 14a
- ○ No, continue at 14b

14a. If you answered "Yes", how helpful is this training in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

14b. If you answered "No", how helpful would this training be in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

Physical Endurance and Job Performance

DEFINITION:
For the following questions, **Endurance** is defined as the ability to carry on with work despite the physical demands of the job - not necessarily related to strength. Endurance is related to physically demanding repetitive duty such as running or repetitive lifting.

15. How many times in the past 12 months did you lack the endurance to complete a task (e.g., were especially winded or tired), typically not performed as a team task, while working in your job?

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

16. What generally happened if you lacked the endurance to perform a physically demanding individual (not team) task?

- ○ Not applicable; I have always had the endurance to perform physically demanding tasks
- ○ The task was not done
- ○ I got someone else to complete the task
- ○ My supervisor assigned the task to someone else
- ○ I worked with one or more individuals and/or equipment (tools) to perform the task
- ○ I found a different way to complete the task satisfactorily which did not require other individuals or nonstandard tools (i.e., came up with a "work around")

17. If the task was not done or completion of the work was delayed for a substantial period of time due to lack of endurance, what was the overall effect?

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

18. Does your unit provide job-related endurance training?

- ○ Yes, continue at 18a
- ○ No, continue at 18b

18a. If you answered "Yes", how helpful is this training in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

please continue on next page...

18b. If you answered "No", how helpful would this training be in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

19. How many different kinds of tasks do you perform as part of your job that leave you especially winded or tired (e.g., repetitive lifting or lift-and-carry tasks)?

- ○ None
- ○ 1
- ○ 2-4
- ○ 5-9
- ○ 10 or more

Physical Fitness/Training

20. How do you assess your level of physical fitness in comparison to other military personnel of your age and gender?

- ○ Well below average
- ○ Below average
- ○ Average
- ○ Above average
- ○ Well above average

21. On average, how many hours per week do you spend in strength training (e.g., lifting weights, using resistance machines, etc.)?

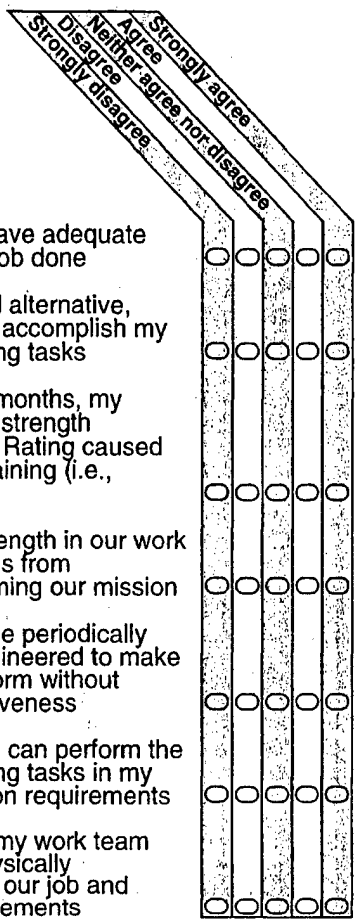
- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

22. On average, how many hours per week do you spend in aerobic training (e.g., running, cycling, swimming, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

General Assessment

Please rate how strongly you agree or disagree with the following statements:



23. Most of the time I have adequate strength to get the job done

24. If needed, I can find alternative, acceptable ways to accomplish my physically demanding tasks

25. During the past 12 months, my difficulty in meeting strength requirements of my Rating caused me to consider retraining (i.e., change Rating)

26. Lack of physical strength in our work team rarely keeps us from successfully performing our mission

27. Jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness

28. I am confident that I can perform the physically demanding tasks in my job and meet mission requirements

29. I am confident that my work team can perform the physically demanding tasks in our job and meet mission requirements

Open-ended Responses

30. Identify the three tasks that require the most strength in your job. Please be specific and identify the objects/equipment involved in the tasks.

a. _____

b. _____

c. _____

31. Identify the three tasks that require the most endurance in your job. For any tasks that are lift or lift-and-carry tasks, write "L" after the task.

a. _____

b. _____

c. _____

Please write any comments on a separate piece of paper (include your Rating).

Air Force Strength and Performance Survey

Incumbent Version

The purpose of this special occupational survey is to help us determine if individuals are experiencing problems in physically demanding jobs. We need your honest feedback about your ability to meet the physical demands of your Air Force Specialty Code (AFSC).

Privacy Act Statement

In accordance with the Privacy Act of 1974 (Public Law 93-579), this notice informs you of the purpose of the survey and how the findings will be used. Please read it carefully.

(1) Authority: 10 U.S.C. 136 and 2358. (2) Principal Purpose: Information collected in this survey will be used to respond to the General Accounting Office with information about physical strength and performance in physically demanding jobs. This information may also assist in formulating policies for enlistment standards. Some findings may be published in professional journals, or reported in manuscripts presented at conferences, symposia, and scientific meetings. In no case will the data be reported for identifiable individuals. (3) Routine Uses: None. (4) Disclosure: Providing information on this survey is voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative. Your survey instrument will be treated as confidential. Identifying information will be used only by persons engaged in, and for purposes of, the survey. Only group statistics will be reported.

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* **Make black marks that fill the circle.**
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WRONG MARKS: 

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Background Information

1. **What is your Air Force Specialty Code (AFSC)?**

   - ○ Tactical Aircraft Maintenance (2A3X3X)
   - ○ Aerospace Maintenance (2A5X1X)
   - ○ Telephone Systems (2E6X3)
   - ○ Munitions Systems (2W0X1)
   - ○ Aircraft Armament Systems (2W1X1X)
   - ○ Electrical (3E0X1)
   - ○ Fire Protection (3E7X1)
   - ○ Security (3P0X1)
   - ○ Law Enforcement (3P0X2)
   - ○ Medical Service Technician (X4N0X1)
   - ○ Other

2. **What is your paygrade?**

   - ○ E-1
   - ○ E-2
   - ○ E-3
   - ○ E-4
   - ○ E-5 or above

3. **What is your gender?**

   - ○ Male
   - ○ Female

4. **How long have you been in your current AFSC?**

   - ○ Less than 4 years
   - ○ At least 4 years, but less than 8 years
   - ○ At least 8 years, but less than 12 years
   - ○ At least 12 years, but less than 16 years
   - ○ 16 years or more

5. **Have you changed your AFSC due to difficulty in meeting the strength demands of your work?**

   - ○ Yes
   - ○ No, continue at question 6

   → If yes, how long have you been in your **new** AFSC?

   - ○ Less than 3 months
   - ○ At least 3 months, but less than 6 months
   - ○ At least 6 months, but less than 9 months
   - ○ At least 9 months, but less than 12 months

Note: If you answered "yes" to question 5, please answer the remaining items in the survey only for the time you have been in your current AFSC.

Over-Exertion Injuries

DEFINITION:
For the following questions, an **over-exertion injury** is defined as a physical injury that may or may not require medical attention that resulted because an individual did not have the physical strength to perform a work-related task.

please continue with question 6...

6. **During the past 12 months, how often have you been unable to perform the full range of your duties because of a work-related over-exertion injury?**

   - ○ Never
   - ○ 1 or 2 times
   - ○ 3 to 5 times
   - ○ 6 to 12 times
   - ○ More than 12 times

7. **During the past 12 months, what effect has over-exertion had on work-related injuries and/or safety problems?**

   - ○ Over-exertion has not been a problem for me on the job
   - ○ I have sometimes had to over-exert, but it did not result in work-related injuries and/or safety problems
   - ○ I have had minor injuries and/or safety problems (no negative impact to people, equipment, or resources) due to my over-exertion
   - ○ I have had work-related injuries and/or safety problems (resulting in 8 labor hours or less of lost productivity) due to my over-exertion
   - ○ I have had major work-related injuries and/or safety problems (resulting in more than 8 labor hours of lost productivity) due to my over-exertion

8. **During the past 12 months, how much additional work were you or your co-workers expected to perform because another co-worker experienced an over-exertion injury?**

   - ○ Not applicable
   - ○ No additional work
   - ○ Less than 8 hours
   - ○ 8-16 hours
   - ○ 17-40 hours
   - ○ More than 40 hours

Physical Strength and Job Performance

9. **How many times in the past 12 months did you lack the physical strength to complete a task (e.g., were physically unable to lift an object), typically not performed as a team task, while working in the job?**

   - ○ Never
   - ○ 1-3 times
   - ○ 4-10 times
   - ○ 11-20 times
   - ○ More than 20 times

10. **During the past 12 months, what impact has lack of physical strength had on your ability to perform your work tasks?**

    - ○ No impact; my physical strength has been sufficient to perform all my tasks
    - ○ Minimal impact; I perform almost all tasks without difficulty
    - ○ Some impact; I perform most tasks without difficulty
    - ○ Significant impact; I have difficulty performing many tasks
    - ○ Major impact; I have difficulty performing most tasks

11. What generally happened if you lacked the strength to perform a physically demanding individual (not team) task.

- ○ Not applicable; I have always had the strength to perform my physically demanding tasks
- ○ The task was not done
- ○ I got someone else to complete the task
- ○ My supervisor assigned the task to someone else
- ○ I worked with one or more individuals and/or equipment (tools) to perform the task
- ○ I found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

12. If the task was not done or completion of the work was delayed for a substantial period of time due to lack of physical strength, what was the overall effect?

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

DEFINITION:
For the following questions, **Mission Readiness** refers to a unit being able to perform its assigned mission(s) effectively. For those units that have a combat mission, mission readiness refers to the ability to participate effectively and efficiently in combat, contingency, and exercise operations.

13. During the past 12 months, what impact has lack of sufficient physical strength on your part had on mission readiness?

- ○ No impact on mission readiness
- ○ Minimal impact on mission readiness
- ○ Some impact on mission readiness
- ○ Significant impact on mission readiness
- ○ Don't know

14. Does your unit provide job-related strength training?

- ○ Yes, continue at 14a
- ○ No, continue at 14b

14a. If you answered "Yes", how helpful is this training in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

14b. If you answered "No", how helpful would this training be in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

Physical Endurance and Job Performance

DEFINITION:
For the following questions, **Endurance** is defined as the ability to carry on with work despite the physical demands of the job - not necessarily related to strength. Endurance is related to physically demanding repetitive duty such as running or repetitive lifting.

15. How many times in the past 12 months did you lack the endurance to complete a task (e.g., were especially winded or tired), typically not performed as a team task, while working in your job?

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

16. What generally happened if you lacked the endurance to perform a physically demanding individual (not team) task?

- ○ Not applicable; I have always had the endurance to perform physically demanding tasks
- ○ The task was not done
- ○ I got someone else to complete the task
- ○ My supervisor assigned the task to someone else
- ○ I worked with one or more individuals and/or equipment (tools) to perform the task
- ○ I found a different way to complete the task satisfactorily which did not require other individuals or nonstandard tools (i.e., came up with a "work around")

17. If the task was not done or completion of the work was delayed for a substantial period of time due to lack of endurance, what was the overall effect?

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

18. Does your unit provide job-related endurance training?

- ○ Yes, continue at 18a
- ○ No, continue at 18b

18a. If you answered "Yes", how helpful is this training in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

please continue on next page...

18b. If you answered "No", how helpful would this training be in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

19. How many different kinds of tasks do you perform as part of your job that leave you especially winded or tired (e.g., repetitive lifting or lift-and-carry tasks)?

- ○ None
- ○ 1
- ○ 2-4
- ○ 5-9
- ○ 10 or more

Physical Fitness/Training

20. How do you assess your level of physical fitness in comparison to other military personnel of your age and gender?

- ○ Well below average
- ○ Below average
- ○ Average
- ○ Above average
- ○ Well above average

21. On average, how many hours per week do you spend in strength training (e.g., lifting weights, using resistance machines, etc.)?

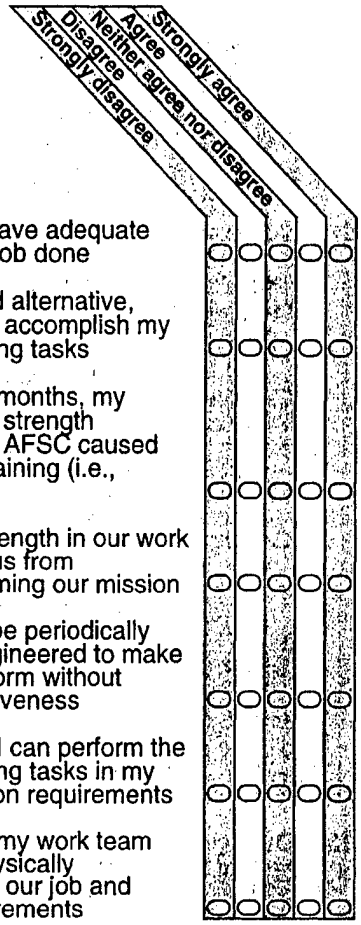
- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

22. On average, how many hours per week do you spend in aerobic training (e.g., running, cycling, swimming, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

General Assessment

Please rate how strongly you agree or disagree with the following statements:



23. Most of the time I have adequate strength to get the job done

24. If needed, I can find alternative, acceptable ways to accomplish my physically demanding tasks

25. During the past 12 months, my difficulty in meeting strength requirements of my AFSC caused me to consider retraining (i.e., change AFSC)

26. Lack of physical strength in our work team rarely keeps us from successfully performing our mission

27. Jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness

28. I am confident that I can perform the physically demanding tasks in my job and meet mission requirements

29. I am confident that my work team can perform the physically demanding tasks in our job and meet mission requirements

Open-ended Responses

30. Identify the three tasks that require the most strength in your job. Please be specific and identify the objects/equipment involved in the tasks.

a. _____

b. _____

c. _____

31. Identify the three tasks that require the most endurance in your job. For any tasks that are lift or lift-and-carry tasks, write "L" after the task.

a. _____

b. _____

c. _____

Please write any comments on a separate piece of paper (include your AFSC).

Marine Corps Strength and Performance Survey

Incumbent Version

The purpose of this special occupational survey is to help us determine if individuals are experiencing problems in physically demanding jobs. We need your honest feedback about your ability to meet the physical demands of your Military Occupational Specialty (MOS).

Privacy Act Statement

In accordance with the Privacy Act of 1974 (Public Law 93-579), this notice informs you of the purpose of the survey and how the findings will be used. Please read it carefully.

(1) Authority: 10 U.S.C. 136 and 2358. (2) Principal Purpose: Information collected in this survey will be used to respond to the General Accounting Office with information about physical strength and performance in physically demanding jobs. This information may also assist in formulating policies for enlistment standards. Some findings may be published in professional journals, or reported in manuscripts presented at conferences, symposia, and scientific meetings. In no case will the data be reported for identifiable individuals. (3) Routine Uses: None. (4) Disclosure: Providing information on this survey is voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative. Your survey instrument will be treated as confidential. Identifying information will be used only by persons engaged in, and for purposes of, the survey. Only group statistics will be reported.

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Background Information

1. **What is your Military Occupational Specialty (MOS)?**

   - ○ Infantry (03xx)
   - ○ Logistics (04xx)
   - ○ Artillery(0811)
   - ○ Engineer (13xx)
   - ○ Subsistence Supply (3361)
   - ○ Motor Vehicle Operator (3531)
   - ○ Military Police (5811)
   - ○ Aircraft Maintenance (60xx)
   - ○ Aviation Ordnance (6531)
   - ○ Firefighting & Rescue (7051)
   - ○ Other

2. **What is your paygrade?**

   - ○ E-1
   - ○ E-2
   - ○ E-3
   - ○ E-4
   - ○ E-5 or above

3. **What is your gender?**

   - ○ Male
   - ○ Female

4. **How long have you been in your current MOS?**

   - ○ Less than 4 years
   - ○ At least 4 years, but less than 8 years
   - ○ At least 8 years, but less than 12 years
   - ○ At least 12 years, but less than 16 years
   - ○ 16 years or more

5. **Have you changed your MOS due to difficulty in meeting the strength demands of your work?**

   - ○ Yes
   - ○ No, continue at question 6

   → If yes, how long have you been in your **new** MOS?

   - ○ Less than 3 months
   - ○ At least 3 months, but less than 6 months
   - ○ At least 6 months, but less than 9 months
   - ○ At least 9 months, but less than 12 months

Note: If you answered "yes" to question 5, please answer the remaining items in the survey only for the time you have been in your current MOS.

Over-Exertion Injuries

DEFINITION:
For the following questions, an **over-exertion injury** is defined as a physical injury that may or may not require medical attention that resulted because an individual did not have the physical strength to perform a work-related task.

please continue with question 6...

6. **During the past 12 months, how often have you been unable to perform the full range of your duties because of a work-related over-exertion injury?**

   - ○ Never
   - ○ 1 or 2 times
   - ○ 3 to 5 times
   - ○ 6 to 12 times
   - ○ More than 12 times

7. **During the past 12 months, what effect has over-exertion had on work-related injuries and/or safety problems?**

   - ○ Over-exertion has not been a problem for me on the job
   - ○ I have sometimes had to over-exert, but it did not result in work-related injuries and/or safety problems
   - ○ I have had minor injuries and/or safety problems (no negative impact to people, equipment, or resources) due to my over-exertion
   - ○ I have had work-related injuries and/or safety problems (resulting in 8 labor hours or less of lost productivity) due to my over-exertion
   - ○ I have had major work-related injuries and/or safety problems (resulting in more than 8 labor hours of lost productivity) due to my over-exertion

8. **During the past 12 months, how much additional work were you or your co-workers expected to perform because another co-worker experienced an over-exertion injury?**

   - ○ Not applicable
   - ○ No additional work
   - ○ Less than 8 hours
   - ○ 8-16 hours
   - ○ 17-40 hours
   - ○ More than 40 hours

Physical Strength and Job Performance

9. **How many times in the past 12 months did you lack the physical strength to complete a task (e.g., were physically unable to lift an object), typically not performed as a team task, while working in the job?**

   - ○ Never
   - ○ 1-3 times
   - ○ 4-10 times
   - ○ 11-20 times
   - ○ More than 20 times

10. **During the past 12 months, what impact has lack of physical strength had on your ability to perform your work tasks?**

    - ○ No impact; my physical strength has been sufficient to perform all my tasks
    - ○ Minimal impact; I perform almost all tasks without difficulty
    - ○ Some impact; I perform most tasks without difficulty
    - ○ Significant impact; I have difficulty performing many tasks
    - ○ Major impact; I have difficulty performing most tasks

11. **What generally happened if you lacked the strength to perform a physically demanding individual (not team) task.**

- ○ Not applicable; I have always had the strength to perform my physically demanding tasks
- ○ The task was not done
- ○ I got someone else to complete the task
- ○ My supervisor assigned the task to someone else
- ○ I worked with one or more individuals and/or equipment (tools) to perform the task
- ○ I found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

12. **If the task was not done or completion of the work was delayed for a substantial period of time due to lack of physical strength, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

DEFINITION:

For the following questions, **Mission Readiness** refers to a unit being able to perform its assigned mission(s) effectively. For those units that have a combat mission, mission readiness refers to the ability to participate effectively and efficiently in combat, contingency, and exercise operations.

13. **During the past 12 months, what impact has lack of sufficient physical strength on your part had on mission readiness?**

- ○ No impact on mission readiness
- ○ Minimal impact on mission readiness
- ○ Some impact on mission readiness
- ○ Significant impact on mission readiness
- ○ Don't know

14. **Does your unit provide job-related strength training?**

- ○ Yes, continue at 14a
- ○ No, continue at 14b

14a. If you answered "Yes", how helpful is this training in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

14b. If you answered "No", how helpful would this training be in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

Physical Endurance and Job Performance

DEFINITION:

For the following questions, **Endurance** is defined as the ability to carry on with work despite the physical demands of the job - not necessarily related to strength. Endurance is related to physically demanding repetitive duty such as running or repetitive lifting.

15. **How many times in the past 12 months did you lack the endurance to complete a task (e.g., were especially winded or tired), typically not performed as a team task, while working in your job?**

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

16. **What generally happened if you lacked the endurance to perform a physically demanding individual (not team) task?**

- ○ Not applicable; I have always had the endurance to perform physically demanding tasks
- ○ The task was not done
- ○ I got someone else to complete the task
- ○ My supervisor assigned the task to someone else
- ○ I worked with one or more individuals and/or equipment (tools) to perform the task
- ○ I found a different way to complete the task satisfactorily which did not require other individuals or nonstandard tools (i.e., came up with a "work around")

17. **If the task was not done or completion of the work was delayed for a substantial period of time due to lack of endurance, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

18. **Does your unit provide job-related endurance training?**

- ○ Yes, continue at 18a
- ○ No, continue at 18b

18a. If you answered "Yes", how helpful is this training in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

please continue on next page...

18b. If you answered "No", how helpful would this training be in improving your job performance?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

19. How many different kinds of tasks do you perform as part of your job that leave you especially winded or tired (e.g., repetitive lifting or lift-and-carry tasks)?

- ○ None
- ○ 1
- ○ 2-4
- ○ 5-9
- ○ 10 or more

Physical Fitness/Training

20. How do you assess your level of physical fitness in comparison to other military personnel of your age and gender?

- ○ Well below average
- ○ Below average
- ○ Average
- ○ Above average
- ○ Well above average

21. On average, how many hours per week do you spend in strength training (e.g., lifting weights, using resistance machines, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

22. On average, how many hours per week do you spend in aerobic training (e.g., running, cycling, swimming, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

General Assessment

Please rate how strongly you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
23. Most of the time I have adequate strength to get the job done	○	○	○	○	○
24. If needed, I can find alternative, acceptable ways to accomplish my physically demanding tasks	○	○	○	○	○
25. During the past 12 months, my difficulty in meeting strength requirements of my MOS caused me to consider retraining (i.e., change MOS)	○	○	○	○	○
26. Lack of physical strength in our work team rarely keeps us from successfully performing our mission	○	○	○	○	○
27. Jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness	○	○	○	○	○
28. I am confident that I can perform the physically demanding tasks in my job and meet mission requirements	○	○	○	○	○
29. I am confident that my work team can perform the physically demanding tasks in our job and meet mission requirements	○	○	○	○	○

Open-ended Responses

30. Identify the three tasks that require the most strength in your job. Please be specific and identify the objects/equipment involved in the tasks.

a. _____

b. _____

c. _____

31. Identify the three tasks that require the most endurance in your job. For any tasks that are lift or lift-and-carry tasks, write "L" after the task.

a. _____

b. _____

c. _____

Please write any comments on a separate piece of paper (include your MOS).

Army Strength and Performance Survey

Supervisor Version

The purpose of this special occupational survey is to help us determine if individuals are experiencing problems in physically demanding jobs. We need your honest feedback, as a first-line supervisor, about the ability of the first-term people you supervise to meet the physical demands of their Military Occupational Specialty (MOS).

Privacy Act Statement

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(1) Authority: 10 U.S.C. 136 and 2358. (2) Principal Purpose: Information collected in this survey will be used to respond to the General Accounting Office with information about physical strength and performance in physically demanding jobs. This information may also assist in formulating policies for enlistment standards. Some findings may be published in professional journals, or reported in manuscripts presented at conferences, symposia, and scientific meetings. In no case will the data be reported for identifiable individuals. (3) Routine Uses: None. (4) Disclosure: Providing information on this survey is voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative. Your survey instrument will be treated as confidential. Identifying information will be used only by persons engaged in, and for purposes of, the survey. Only group statistics will be reported.

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RIGHT MARK: ●

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Background Information

1. **What is your Military Occupational Specialty (MOS)?**

   - ○ Infantryman (11B)
   - ○ Armor Crewman (19K)
   - ○ Radio Operator-Maintainer (31C)
   - ○ Chemical Operations Specialist (54B)
   - ○ Track Vehicle Repairer (63H)
   - ○ Motor Transport Operator (88M)
   - ○ Medical Specialist (91B)
   - ○ Food Service Specialist (92G, formerly 94B)
   - ○ Unit Supply Specialist (92Y)
   - ○ Military Police (95B)
   - ○ Other

2. **What is your paygrade?**

   - ○ E-5 or below
   - ○ E-6
   - ○ E-7
   - ○ E-8
   - ○ E-9

3. **What is your gender?**

   - ○ Male
   - ○ Female

4. **What type of UNIT are you assigned to?**

   - ○ TOE (a unit with a wartime mission)
   - ○ TDA (a unit with a primarily peacetime mission)
   - ○ Do not know

5. **How long have you been in your current MOS?**

   - ○ Less than 4 years
   - ○ At least 4 years, but less than 8 years
   - ○ At least 8 years, but less than 12 years
   - ○ At least 12 years, but less than 16 years
   - ○ 16 years or more

6. **How many first term of enlistment ("first-term") personnel do you typically supervise at a time?**

   - ○ None
   - ○ 1-4
   - ○ 5-8
   - ○ 9-12
   - ○ More than 12

7. **During the past 12 months, has difficulty in meeting strength requirements caused your first-term subordinates to retrain or consider retraining (i.e., change MOS)?**

   - ○ No impact on retraining
   - ○ 1 to 2 people retrained
   - ○ 3 to 4 people retrained
   - ○ 5 to 6 people retrained
   - ○ More than 6 people retrained

Over-Exertion Injuries

DEFINITION:

For the following questions, an **over-exertion injury** is defined as a physical injury that may or may not require medical attention that resulted because an individual did not have the physical strength to perform a work-related task.

please continue with question 8...

8. **Over the past 12 months, how often have your first-term subordinates been unable to perform their full range of duties because of a work-related over-exertion injury?**

   - ○ Never
   - ○ 1 or 2 times
   - ○ 3 to 5 times
   - ○ 6 to 12 times
   - ○ More than 12 times

9. **During the past 12 months, what effect has over-exertion of your first-term subordinates had on work-related injuries and/or safety problems?**

   - ○ Over-exertion has not been a problem on the job
   - ○ Some over-exertion noted, but no work-related injuries and/or safety problems
   - ○ Minor injuries and/or safety problems (no negative impact to people, equipment, or resources) due to over-exertion
   - ○ Injuries and/or safety problems have occurred (resulting in 8 labor hours or less of lost productivity) due to over-exertion
   - ○ Major injuries and/or safety problems have occurred (resulting in more than 8 labor hours of lost productivity) due to over-exertion

10. **During the past 12 months, how much additional work were your first-term subordinates expected to perform because one of their co-workers experienced an over-exertion injury?**

    - ○ Not applicable
    - ○ No additional work
    - ○ Less than 8 hours
    - ○ 8-16 hours
    - ○ 17-40 hours
    - ○ More than 40 hours

Physical Strength and Job Performance

11. **During the past 12 months, what impact has lack of physical strength of your first-term subordinates had on their ability to perform work tasks?**

    - ○ No impact; their physical strength has been sufficient to perform all tasks
    - ○ Minimal impact; they perform almost all tasks without difficulty
    - ○ Some impact; they perform most tasks without difficulty
    - ○ Significant impact; they have difficulty performing many tasks
    - ○ Major impact; they have difficulty performing most tasks

12. **How many times in the past 12 months did your first-term subordinates lack the physical strength to complete a task (e.g., were physically unable to lift an object), typically not performed as a team task, while working in their job?**

    - ○ Never
    - ○ 1-3 times
    - ○ 4-10 times
    - ○ 11-20 times
    - ○ More than 20 times

13. **Mark the response that best describes what happened when your first-term subordinates lacked the strength to perform a physically demanding individual (not team) task.**

- ○ Not applicable; my first-term subordinates have always had the strength to perform their physically demanding tasks
- ○ The task was not done
- ○ The individual got someone else to complete the task
- ○ I assigned the task to someone else
- ○ The individual worked with one or more individuals and/or equipment (tools) to perform the task
- ○ The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

14. **If the task was not done or completion of the work was delayed for a substantial period of time, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

DEFINITION:

For the following questions, **Mission Readiness** refers to a unit being able to perform its assigned mission(s) effectively. For those units that have a combat mission, mission readiness refers to the ability to participate effectively and efficiently in combat, contingency, and exercise operations.

15. **During the past 12 months, what impact has a lack of sufficient physical strength of your first-term subordinates had on mission readiness?**

- ○ No impact on mission readiness
- ○ Minimal impact on mission readiness
- ○ Some impact on mission readiness
- ○ Significant impact on mission readiness
- ○ Don't know

16. **Does your unit provide job-related strength training?**

- ○ Yes, continue at 16a
- ○ No, continue at 16b

16a. If you answered "Yes", how helpful is this training in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

16b. If you answered "No", how helpful would this training be in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

Physical Endurance and Job Performance

DEFINITION:

For the following questions, **Endurance** is defined as the ability to carry on with work despite the physical demands of the job - not necessarily related to strength. Endurance is related to physically demanding repetitive duty such as running or repetitive lifting.

17. **How many times in the past 12 months did your first-term subordinates lack the endurance to complete a task (e.g., were especially winded or tired), typically not performed as a team task, while working in their job?**

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

18. **Mark the response that best describes what happened when your first-term subordinates lacked the endurance to perform a physically demanding individual (not team) task.**

- ○ Not applicable; my first-term subordinates have always had the endurance to perform their physically demanding tasks
- ○ The task was not done
- ○ The individual got someone else to complete the task
- ○ I assigned the task to someone else
- ○ The individual worked with one or more individuals and/or equipment (tools) to perform the task
- ○ The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

19. **If the task was not done or completion of the work was delayed for a substantial period of time, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

20. **Does your unit provide job-related endurance training?**

- ○ Yes, continue at 20a
- ○ No, continue at 20b

20a. If you answered "Yes", how helpful is this training in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

please continue on next page...

20b. If you answered "No", how helpful would this training be in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

21. How many different kinds of tasks do your first-term subordinates perform as part of their job that leave them especially winded or tired (e.g., repetitive lifting or lift-and-carry tasks)?

- ○ None
- ○ 1
- ○ 2-4
- ○ 5-9
- ○ 10 or more

Physical Fitness/Training

22. In general, how do you assess the physical fitness of your first-term subordinates in comparison to other military personnel of their age and gender?

- ○ Well below average
- ○ Below average
- ○ Average
- ○ Above average
- ○ Well above average

23. On average, how many hours per week do your first-term subordinates spend in strength training (e.g., lifting weights, using resistance machines, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

24. On average, how many hours per week do your first-term subordinates spend in aerobic training (e.g., running, cycling, swimming, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

General Assessment

Please rate how strongly you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
25. The first-term personnel I supervise typically have adequate strength to get the job done	○	○	○	○	○
26. If needed, service members find alternative, acceptable ways to accomplish their physically demanding tasks	○	○	○	○	○
27. Lack of physical strength of my first-term subordinates rarely keeps us from successfully performing our mission	○	○	○	○	○
28. Jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness	○	○	○	○	○
29. If there were job performance problems related to physical strength, I would learn about them from those I supervise	○	○	○	○	○
30. If I learned of job performance problems caused by lack of physical strength, I would be in a position to do something to improve the situation	○	○	○	○	○
31. I am confident that the service members I supervise can perform the physically demanding tasks in their job and meet mission requirements	○	○	○	○	○

Open-ended Responses

32. Identify the three tasks performed by your first-term personnel that require the most strength (along with the MOS for that task). Please be specific and identify the objects/equipment involved in the tasks.

a. _____

b. _____

c. _____

33. Identify the three tasks performed by your first-term personnel that require the most endurance (along with the MOS for that task). For any tasks that are lift or lift-and-carry tasks, write "L" after the task.

a. _____

b. _____

c. _____

Please write any comments on a separate piece of paper (include your MOS).

Navy Strength and Performance Survey

Supervisor Version

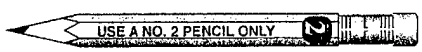
The purpose of this special occupational survey is to help us determine if individuals are experiencing problems in physically demanding jobs. We need your honest feedback, as a first-line supervisor, about the ability of the first-term people you supervise to meet the physical demands of their Rating.

Privacy Act Statement

In accordance with the Privacy Act of 1974 (Public Law 93-579), this notice informs you of the purpose of the survey and how the findings will be used. Please read it carefully.

(1) Authority: 10 U.S.C. 136 and 2358. (2) Principal Purpose: Information collected in this survey will be used to respond to the General Accounting Office with information about physical strength and performance in physically demanding jobs. This information may also assist in formulating policies for enlistment standards. Some findings may be published in professional journals, or reported in manuscripts presented at conferences, symposia, and scientific meetings. In no case will the data be reported for identifiable individuals. (3) Routine Uses: None. (4) Disclosure: Providing information on this survey is voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative. Your survey instrument will be treated as confidential. Identifying information will be used only by persons engaged in, and for purposes of, the survey. Only group statistics will be reported.

* **USE NO. 2 PENCIL ONLY.**
* **Do NOT use ink, ballpoint or felt tip pens.**
* **Erase cleanly and completely any changes you make.**
* **Make black marks that fill the circle.**
* **Do not make stray marks on the form.**
* **Do not fold, tear, or mutilate this form.**



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Background Information

1. **What is your Rating?**

- ○ Aviation Boatswain's Mate (AB) (includes ABE, ABF, ABH)
- ○ Aviation Ordnanceman (AO)
- ○ Aviation Support Equipment Technician (AS)
- ○ Boatswain's Mate (BM)
- ○ Builder (BU)
- ○ Damage Controlman (DC)
- ○ Electrician's Mate (EM)
- ○ Hospital Corpsman (HM)
- ○ Hull Technician (HT)
- ○ Torpedoman's Mate (TM)
- ○ Other

2. **What is your paygrade?**

- ○ E-5 or below
- ○ E-6
- ○ E-7
- ○ E-8
- ○ E-9

3. **What is your gender?**

- ○ Male
- ○ Female

4. **How long have you been in your current Rating?**

- ○ Less than 4 years
- ○ At least 4 years, but less than 8 years
- ○ At least 8 years, but less than 12 years
- ○ At least 12 years, but less than 16 years
- ○ 16 years or more

5. **How many first term of enlistment ("first-term") personnel do you typically supervise at a time?**

- ○ None
- ○ 1-4
- ○ 5-8
- ○ 9-12
- ○ More than 12

6. **During the past 12 months, has difficulty in meeting strength requirements caused your first-term subordinates to retrain or consider retraining (i.e., change Rating)?**

- ○ No impact on retraining
- ○ 1 to 2 people retrained
- ○ 3 to 4 people retrained
- ○ 5 to 6 people retrained
- ○ More than 6 people retrained

Over-Exertion Injuries

DEFINITION:

For the following questions, an **over-exertion injury** is defined as a physical injury that may or may not require medical attention that resulted because an individual did not have the physical strength to perform a work-related task.

please continue with question 7...

7. **Over the past 12 months, how often have your first-term subordinates been unable to perform their full range of duties because of a work-related over-exertion injury?**

- ○ Never
- ○ 1 or 2 times
- ○ 3 to 5 times
- ○ 6 to 12 times
- ○ More than 12 times

8. **During the past 12 months, what effect has over-exertion of your first-term subordinates had on work-related injuries and/or safety problems?**

- ○ Over-exertion has not been a problem on the job
- ○ Some over-exertion noted, but no work-related injuries and/or safety problems
- ○ Minor injuries and/or safety problems (no negative impact to people, equipment, or resources) due to over-exertion
- ○ Injuries and/or safety problems have occurred (resulting in 8 labor hours or less of lost productivity) due to over-exertion
- ○ Major injuries and/or safety problems have occurred (resulting in more than 8 labor hours of lost productivity) due to over-exertion

9. **During the past 12 months, how much additional work were your first-term subordinates expected to perform because one of their co-workers experienced an over-exertion injury?**

- ○ Not applicable
- ○ No additional work
- ○ Less than 8 hours
- ○ 8-16 hours
- ○ 17-40 hours
- ○ More than 40 hours

Physical Strength and Job Performance

10. **During the past 12 months, what impact has lack of physical strength of your first-term subordinates had on their ability to perform work tasks?**

- ○ No impact; their physical strength has been sufficient to perform all tasks
- ○ Minimal impact; they perform almost all tasks without difficulty
- ○ Some impact; they perform most tasks without difficulty
- ○ Significant impact; they have difficulty performing many tasks
- ○ Major impact; they have difficulty performing most tasks

11. **How many times in the past 12 months did your first-term subordinates lack the physical strength to complete a task (e.g., were physically unable to lift an object), typically not performed as a team task, while working in their job?**

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

12. **Mark the response that best describes what happened when your first-term subordinates lacked the strength to perform a physically demanding individual (not team) task.**

- ○ Not applicable; my first-term subordinates have always had the strength to perform their physically demanding tasks
- ○ The task was not done
- ○ The individual got someone else to complete the task
- ○ I assigned the task to someone else
- ○ The individual worked with one or more individuals and/or equipment (tools) to perform the task
- ○ The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

13. **If the task was not done or completion of the work was delayed for a substantial period of time, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

DEFINITION:

For the following questions, **Mission Readiness** refers to a unit being able to perform its assigned mission(s) effectively. For those units that have a combat mission, mission readiness refers to the ability to participate effectively and efficiently in combat, contingency, and exercise operations.

14. **During the past 12 months, what impact has a lack of sufficient physical strength of your first-term subordinates had on mission readiness?**

- ○ No impact on mission readiness
- ○ Minimal impact on mission readiness
- ○ Some impact on mission readiness
- ○ Significant impact on mission readiness
- ○ Don't know

15. **Does your unit provide job-related strength training?**

- ○ Yes, continue at 15a
- ○ No, continue at 15b

15a. If you answered "Yes", how helpful is this training in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

15b. If you answered "No", how helpful would this training be in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

Physical Endurance and Job Performance

DEFINITION:

For the following questions, **Endurance** is defined as the ability to carry on with work despite the physical demands of the job - not necessarily related to strength. Endurance is related to physically demanding repetitive duty such as running or repetitive lifting.

16. **How many times in the past 12 months did your first-term subordinates lack the endurance to complete a task (e.g., were especially winded or tired), typically not performed as a team task, while working in their job?**

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

17. **Mark the response that best describes what happened when your first-term subordinates lacked the endurance to perform a physically demanding individual (not team) task.**

- ○ Not applicable; my first-term subordinates have always had the endurance to perform their physically demanding tasks
- ○ The task was not done
- ○ The individual got someone else to complete the task
- ○ I assigned the task to someone else
- ○ The individual worked with one or more individuals and/or equipment (tools) to perform the task
- ○ The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

18. **If the task was not done or completion of the work was delayed for a substantial period of time, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

19. **Does your unit provide job-related endurance training?**

- ○ Yes, continue at 19a
- ○ No, continue at 19b

19a. If you answered "Yes", how helpful is this training in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

please continue on next page...

19b. If you answered "No", how helpful would this training be in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

20. How many different kinds of tasks do your first-term subordinates perform as part of their job that leave them especially winded or tired (e.g., repetitive lifting or lift-and-carry tasks)?

- ○ None
- ○ 1
- ○ 2-4
- ○ 5-9
- ○ 10 or more

Physical Fitness/Training

21. In general, how do you assess the physical fitness of your first-term subordinates in comparison to other military personnel of their age and gender?

- ○ Well below average
- ○ Below average
- ○ Average
- ○ Above average
- ○ Well above average

22. On average, how many hours per week do your first-term subordinates spend in strength training (e.g., lifting weights, using resistance machines, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

23. On average, how many hours per week do your first-term subordinates spend in aerobic training (e.g., running, cycling, swimming, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

General Assessment

Please rate how strongly you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
24. The first-term personnel I supervise typically have adequate strength to get the job done	○	○	○	○	○
25. If needed, service members find alternative, acceptable ways to accomplish their physically demanding tasks	○	○	○	○	○
26. Lack of physical strength of my first-term subordinates rarely keeps us from successfully performing our mission	○	○	○	○	○
27. Jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness	○	○	○	○	○
28. If there were job performance problems related to physical strength, I would learn about them from those I supervise	○	○	○	○	○
29. If I learned of job performance problems caused by lack of physical strength, I would be in a position to do something to improve the situation	○	○	○	○	○
30. I am confident that the service members I supervise can perform the physically demanding tasks in their job and meet mission requirements	○	○	○	○	○

Open-ended Responses

31. Identify the three tasks performed by your first-term personnel that require the most strength (along with the Rating for that task). Please be specific and identify the objects/equipment involved in the tasks.

a. _____

b. _____

c. _____

32. Identify the three tasks performed by your first-term personnel that require the most endurance (along with the Rating for that task). For any tasks that are lift or lift-and-carry tasks, write "L" after the task.

a. _____

b. _____

c. _____

Please write any comments on a separate piece of paper (include your Rating).

Air Force Strength and Performance Survey

Supervisor Version

The purpose of this special occupational survey is to help us determine if individuals are experiencing problems in physically demanding jobs. We need your honest feedback, as a first-line supervisor, about the ability of the first-term people you supervise to meet the physical demands of their Air Force Specialty Code (AFSC).

Privacy Act Statement

In accordance with the Privacy Act of 1974 (Public Law 93-579), this notice informs you of the purpose of the survey and how the findings will be used. Please read it carefully.

(1) Authority: 10 U.S.C. 136 and 2358. (2) Principal Purpose: Information collected in this survey will be used to respond to the General Accounting Office with information about physical strength and performance in physically demanding jobs. This information may also assist in formulating policies for enlistment standards. Some findings may be published in professional journals, or reported in manuscripts presented at conferences, symposia, and scientific meetings. In no case will the data be reported for identifiable individuals. (3) Routine Uses: None. (4) Disclosure: Providing information on this survey is voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative. Your survey instrument will be treated as confidential. Identifying information will be used only by persons engaged in, and for purposes of, the survey. Only group statistics will be reported.

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WRONG MARKS: ⊘ ⊗ ◒ ⊙

RIGHT MARK: ●

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Background Information

1. **What is your Air Force Specialty Code (AFSC)?**

- ○ Tactical Aircraft Maintenance (2A3X3X)
- ○ Aerospace Maintenance (2A5X1X)
- ○ Telephone Systems (2E6X3)
- ○ Munitions Systems (2W0X1)
- ○ Aircraft Armament Systems (2W1X1X)
- ○ Electrical (3E0X1)
- ○ Fire Protection (3E7X1)
- ○ Security (3P0X1)
- ○ Law Enforcement (3P0X2)
- ○ Medical Service Technician (X4N0X1)
- ○ Other

2. **What is your paygrade?**

- ○ E-5 or below
- ○ E-6
- ○ E-7
- ○ E-8
- ○ E-9

3. **What is your gender?**

- ○ Male
- ○ Female

4. **How long have you been in your current AFSC?**

- ○ Less than 4 years
- ○ At least 4 years, but less than 8 years
- ○ At least 8 years, but less than 12 years
- ○ At least 12 years, but less than 16 years
- ○ 16 years or more

5. **How many first term of enlistment ("first-term") personnel do you typically supervise at a time?**

- ○ None
- ○ 1-4
- ○ 5-8
- ○ 9-12
- ○ More than 12

6. **During the past 12 months, has difficulty in meeting strength requirements caused your first-term subordinates to retrain or consider retraining (i.e., change AFSC)?**

- ○ No impact on retraining
- ○ 1 to 2 people retrained
- ○ 3 to 4 people retrained
- ○ 5 to 6 people retrained
- ○ More than 6 people retrained

Over-Exertion Injuries

DEFINITION:

For the following questions, an **over-exertion injury** is defined as a physical injury that may or may not require medical attention that resulted because an individual did not have the physical strength to perform a work-related task.

please continue with question 7...

7. **Over the past 12 months, how often have your first-term subordinates been unable to perform their full range of duties because of a work-related over-exertion injury?**

- ○ Never
- ○ 1 or 2 times
- ○ 3 to 5 times
- ○ 6 to 12 times
- ○ More than 12 times

8. **During the past 12 months, what effect has over-exertion of your first-term subordinates had on work-related injuries and/or safety problems?**

- ○ Over-exertion has not been a problem on the job
- ○ Some over-exertion noted, but no work-related injuries and/or safety problems
- ○ Minor injuries and/or safety problems (no negative impact to people, equipment, or resources) due to over-exertion
- ○ Injuries and/or safety problems have occurred (resulting in 8 labor hours or less of lost productivity) due to over-exertion
- ○ Major injuries and/or safety problems have occurred (resulting in more than 8 labor hours of lost productivity) due to over-exertion

9. **During the past 12 months, how much additional work were your first-term subordinates expected to perform because one of their co-workers experienced an over-exertion injury?**

- ○ Not applicable
- ○ No additional work
- ○ Less than 8 hours
- ○ 8-16 hours
- ○ 17-40 hours
- ○ More than 40 hours

Physical Strength and Job Performance

10. **During the past 12 months, what impact has lack of physical strength of your first-term subordinates had on their ability to perform work tasks?**

- ○ No impact; their physical strength has been sufficient to perform all tasks
- ○ Minimal impact; they perform almost all tasks without difficulty
- ○ Some impact; they perform most tasks without difficulty
- ○ Significant impact; they have difficulty performing many tasks
- ○ Major impact; they have difficulty performing most tasks

11. **How many times in the past 12 months did your first-term subordinates lack the physical strength to complete a task (e.g., were physically unable to lift an object), typically not performed as a team task, while working in their job?**

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

12. **Mark the response that best describes what happened when your first-term subordinates lacked the strength to perform a physically demanding individual (not team) task.**

- ○ Not applicable; my first-term subordinates have always had the strength to perform their physically demanding tasks
- ○ The task was not done
- ○ The individual got someone else to complete the task
- ○ I assigned the task to someone else
- ○ The individual worked with one or more individuals and/or equipment (tools) to perform the task
- ○ The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

13. **If the task was not done or completion of the work was delayed for a substantial period of time, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

DEFINITION:

For the following questions, **Mission Readiness** refers to a unit being able to perform its assigned mission(s) effectively. For those units that have a combat mission, mission readiness refers to the ability to participate effectively and efficiently in combat, contingency, and exercise operations.

14. **During the past 12 months, what impact has a lack of sufficient physical strength of your first-term subordinates had on mission readiness?**

- ○ No impact on mission readiness
- ○ Minimal impact on mission readiness
- ○ Some impact on mission readiness
- ○ Significant impact on mission readiness
- ○ Don't know

15. **Does your unit provide job-related strength training?**

- ○ Yes, continue at 15a
- ○ No, continue at 15b

15a. If you answered "Yes", how helpful is this training in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

15b. If you answered "No", how helpful would this training be in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

Physical Endurance and Job Performance

DEFINITION:

For the following questions, **Endurance** is defined as the ability to carry on with work despite the physical demands of the job - not necessarily related to strength. Endurance is related to physically demanding repetitive duty such as running or repetitive lifting.

16. **How many times in the past 12 months did your first-term subordinates lack the endurance to complete a task (e.g., were especially winded or tired), typically not performed as a team task, while working in their job?**

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

17. **Mark the response that best describes what happened when your first-term subordinates lacked the endurance to perform a physically demanding individual (not team) task.**

- ○ Not applicable; my first-term subordinates have always had the endurance to perform their physically demanding tasks
- ○ The task was not done
- ○ The individual got someone else to complete the task
- ○ I assigned the task to someone else
- ○ The individual worked with one or more individuals and/or equipment (tools) to perform the task
- ○ The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

18. **If the task was not done or completion of the work was delayed for a substantial period of time, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

19. **Does your unit provide job-related endurance training?**

- ○ Yes, continue at 19a
- ○ No, continue at 19b

19a. If you answered "Yes", how helpful is this training in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

please continue on next page...

19b. If you answered "No", how helpful would this training be in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

20. How many different kinds of tasks do your first-term subordinates perform as part of their job that leave them especially winded or tired (e.g., repetitive lifting or lift-and-carry tasks)?

- ○ None
- ○ 1
- ○ 2-4
- ○ 5-9
- ○ 10 or more

Physical Fitness/Training

21. In general, how do you assess the physical fitness of your first-term subordinates in comparison to other military personnel of their age and gender?

- ○ Well below average
- ○ Below average
- ○ Average
- ○ Above average
- ○ Well above average

22. On average, how many hours per week do your first-term subordinates spend in strength training (e.g., lifting weights, using resistance machines, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

23. On average, how many hours per week do your first-term subordinates spend in aerobic training (e.g., running, cycling, swimming, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

General Assessment

Please rate how strongly you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
24. The first-term personnel I supervise typically have adequate strength to get the job done	○	○	○	○	○
25. If needed, service members find alternative, acceptable ways to accomplish their physically demanding tasks	○	○	○	○	○
26. Lack of physical strength of my first-term subordinates rarely keeps us from successfully performing our mission	○	○	○	○	○
27. Jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness	○	○	○	○	○
28. If there were job performance problems related to physical strength, I would learn about them from those I supervise	○	○	○	○	○
29. If I learned of job performance problems caused by lack of physical strength, I would be in a position to do something to improve the situation	○	○	○	○	○
30. I am confident that the service members I supervise can perform the physically demanding tasks in their job and meet mission requirements	○	○	○	○	○

Open-ended Responses

31. Identify the three tasks performed by your first-term personnel that require the most strength (along with the AFSC for that task). Please be specific and identify the objects/equipment involved in the tasks.

a. _____

b. _____

c. _____

32. Identify the three tasks performed by your first-term personnel that require the most endurance (along with the AFSC for that task). For any tasks that are lift or lift-and-carry tasks, write "L" after the task.

a. _____

b. _____

c. _____

Please write any comments on a separate piece of paper (include your AFSC).

Marine Corps Strength and Performance Survey

Supervisor Version

The purpose of this special occupational survey is to help us determine if individuals are experiencing problems in physically demanding jobs. We need your honest feedback, as a first-line supervisor, about the ability of the first-term people you supervise to meet the physical demands of their Military Occupational Specialty (MOS).

Privacy Act Statement

In accordance with the Privacy Act of 1974 (Public Law 93-579), this notice informs you of the purpose of the survey and how the findings will be used. Please read it carefully.

(1) Authority: 10 U.S.C. 136 and 2358. (2) Principal Purpose: Information collected in this survey will be used to respond to the General Accounting Office with information about physical strength and performance in physically demanding jobs. This information may also assist in formulating policies for enlistment standards. Some findings may be published in professional journals, or reported in manuscripts presented at conferences, symposia, and scientific meetings. In no case will the data be reported for identifiable individuals. (3) Routine Uses: None. (4) Disclosure: Providing information on this survey is voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative. Your survey instrument will be treated as confidential. Identifying information will be used only by persons engaged in, and for purposes of, the survey. Only group statistics will be reported.

* **USE NO. 2 PENCIL ONLY.**
* **Do NOT use ink, ballpoint or felt tip pens.**
* **Erase cleanly and completely any changes you make.**
* **Make black marks that fill the circle.**
* **Do not make stray marks on the form.**
* **Do not fold, tear, or mutilate this form.**

WRONG MARKS: ⊘ ⊗ ◒ ⊙

RIGHT MARK: ●

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Background Information

1. **What is your Military Occupational Specialty (MOS)?**

   - ○ Infantry (03xx)
   - ○ Logistics (04xx)
   - ○ Artillery(0811)
   - ○ Engineer (13xx)
   - ○ Subsistence Supply (3361)
   - ○ Motor Vehicle Operator (3531)
   - ○ Military Police (5811)
   - ○ Aircraft Maintenance (60xx)
   - ○ Aviation Ordnance (6531)
   - ○ Firefighting & Rescue (7051)
   - ○ Other

2. **What is your paygrade?**

   - ○ E-5 or below
   - ○ E-6
   - ○ E-7
   - ○ E-8
   - ○ E-9

3. **What is your gender?**

   - ○ Male
   - ○ Female

4. **How long have you been in your current MOS?**

   - ○ Less than 4 years
   - ○ At least 4 years, but less than 8 years
   - ○ At least 8 years, but less than 12 years
   - ○ At least 12 years, but less than 16 years
   - ○ 16 years or more

5. **How many first term of enlistment ("first-term") personnel do you typically supervise at a time?**

   - ○ None
   - ○ 1-4
   - ○ 5-8
   - ○ 9-12
   - ○ More than 12

6. **During the past 12 months, has difficulty in meeting strength requirements caused your first-term subordinates to retrain or consider retraining (i.e., change MOS)?**

   - ○ No impact on retraining
   - ○ 1 to 2 people retrained
   - ○ 3 to 4 people retrained
   - ○ 5 to 6 people retrained
   - ○ More than 6 people retrained

Over-Exertion Injuries

DEFINITION:

For the following questions, an **over-exertion injury** is defined as a physical injury that may or may not require medical attention that resulted because an individual did not have the physical strength to perform a work-related task.

please continue with question 7...

7. **Over the past 12 months, how often have your first-term subordinates been unable to perform their full range of duties because of a work-related over-exertion injury?**

   - ○ Never
   - ○ 1 or 2 times
   - ○ 3 to 5 times
   - ○ 6 to 12 times
   - ○ More than 12 times

8. **During the past 12 months, what effect has over-exertion of your first-term subordinates had on work-related injuries and/or safety problems?**

   - ○ Over-exertion has not been a problem on the job
   - ○ Some over-exertion noted, but no work-related injuries and/or safety problems
   - ○ Minor injuries and/or safety problems (no negative impact to people, equipment, or resources) due to over-exertion
   - ○ Injuries and/or safety problems have occurred (resulting in 8 labor hours or less of lost productivity) due to over-exertion
   - ○ Major injuries and/or safety problems have occurred (resulting in more than 8 labor hours of lost productivity) due to over-exertion

9. **During the past 12 months, how much additional work were your first-term subordinates expected to perform because one of their co-workers experienced an over-exertion injury?**

   - ○ Not applicable
   - ○ No additional work
   - ○ Less than 8 hours
   - ○ 8-16 hours
   - ○ 17-40 hours
   - ○ More than 40 hours

Physical Strength and Job Performance

10. **During the past 12 months, what impact has lack of physical strength of your first-term subordinates had on their ability to perform work tasks?**

    - ○ No impact; their physical strength has been sufficient to perform all tasks
    - ○ Minimal impact; they perform almost all tasks without difficulty
    - ○ Some impact; they perform most tasks without difficulty
    - ○ Significant impact; they have difficulty performing many tasks
    - ○ Major impact; they have difficulty performing most tasks

11. **How many times in the past 12 months did your first-term subordinates lack the physical strength to complete a task (e.g., were physically unable to lift an object), typically not performed as a team task, while working in their job?**

    - ○ Never
    - ○ 1-3 times
    - ○ 4-10 times
    - ○ 11-20 times
    - ○ More than 20 times

12. **Mark the response that best describes what happened when your first-term subordinates lacked the strength to perform a physically demanding individual (not team) task.**

- ○ Not applicable; my first-term subordinates have always had the strength to perform their physically demanding tasks
- ○ The task was not done
- ○ The individual got someone else to complete the task
- ○ I assigned the task to someone else
- ○ The individual worked with one or more individuals and/or equipment (tools) to perform the task
- ○ The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

13. **If the task was not done or completion of the work was delayed for a substantial period of time, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

DEFINITION:

For the following questions, **Mission Readiness** refers to a unit being able to perform its assigned mission(s) effectively. For those units that have a combat mission, mission readiness refers to the ability to participate effectively and efficiently in combat, contingency, and exercise operations.

14. **During the past 12 months, what impact has a lack of sufficient physical strength of your first-term subordinates had on mission readiness?**

- ○ No impact on mission readiness
- ○ Minimal impact on mission readiness
- ○ Some impact on mission readiness
- ○ Significant impact on mission readiness
- ○ Don't know

15. **Does your unit provide job-related strength training?**

- ○ Yes, continue at 15a
- ○ No, continue at 15b

15a. If you answered "Yes", how helpful is this training in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

15b. If you answered "No", how helpful would this training be in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

Physical Endurance and Job Performance

DEFINITION:

For the following questions, **Endurance** is defined as the ability to carry on with work despite the physical demands of the job - not necessarily related to strength. Endurance is related to physically demanding repetitive duty such as running or repetitive lifting.

16. **How many times in the past 12 months did your first-term subordinates lack the endurance to complete a task (e.g., were especially winded or tired), typically not performed as a team task, while working in their job?**

- ○ Never
- ○ 1-3 times
- ○ 4-10 times
- ○ 11-20 times
- ○ More than 20 times

17. **Mark the response that best describes what happened when your first-term subordinates lacked the endurance to perform a physically demanding individual (not team) task.**

- ○ Not applicable; my first-term subordinates have always had the endurance to perform their physically demanding tasks
- ○ The task was not done
- ○ The individual got someone else to complete the task
- ○ I assigned the task to someone else
- ○ The individual worked with one or more individuals and/or equipment (tools) to perform the task
- ○ The individual found a different way to complete the task satisfactorily which did not require other individuals (i.e., came up with a "work around")

18. **If the task was not done or completion of the work was delayed for a substantial period of time, what was the overall effect?**

- ○ No impact on others' ability to complete mission essential tasks
- ○ Minimal impact on others' ability to complete mission essential tasks
- ○ Some impact on others' ability to complete mission essential tasks
- ○ Significant impact on others' ability to complete mission essential tasks
- ○ Don't know

19. **Does your unit provide job-related endurance training?**

- ○ Yes, continue at 19a
- ○ No, continue at 19b

19a. If you answered "Yes", how helpful is this training in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

please continue on next page...

19b. If you answered "No", how helpful would this training be in improving the job performance of your first-term subordinates?

- ○ Not at all helpful
- ○ Somewhat helpful
- ○ Moderately helpful
- ○ Very helpful
- ○ Extremely helpful

20. How many different kinds of tasks do your first-term subordinates perform as part of their job that leave them especially winded or tired (e.g., repetitive lifting or lift-and-carry tasks)?

- ○ None
- ○ 1
- ○ 2-4
- ○ 5-9
- ○ 10 or more

Physical Fitness/Training

21. In general, how do you assess the physical fitness of your first-term subordinates in comparison to other military personnel of their age and gender?

- ○ Well below average
- ○ Below average
- ○ Average
- ○ Above average
- ○ Well above average

22. On average, how many hours per week do your first-term subordinates spend in strength training (e.g., lifting weights, using resistance machines, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

23. On average, how many hours per week do your first-term subordinates spend in aerobic training (e.g., running, cycling, swimming, etc.)?

- ○ No time
- ○ Less than 1 hour
- ○ At least 1 hour, but less than 3 hours
- ○ At least 3 hours, but less than 5 hours
- ○ 5 hours or more

General Assessment

Please rate how strongly you agree or disagree with the following statements:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
24. The first-term personnel I supervise typically have adequate strength to get the job done	○	○	○	○	○
25. If needed, service members find alternative, acceptable ways to accomplish their physically demanding tasks	○	○	○	○	○
26. Lack of physical strength of my first-term subordinates rarely keeps us from successfully performing our mission	○	○	○	○	○
27. Jobs/tasks should be periodically reviewed and reengineered to make them easier to perform without reducing unit effectiveness	○	○	○	○	○
28. If there were job performance problems related to physical strength, I would learn about them from those I supervise	○	○	○	○	○
29. If I learned of job performance problems caused by lack of physical strength, I would be in a position to do something to improve the situation	○	○	○	○	○
30. I am confident that the service members I supervise can perform the physically demanding tasks in their job and meet mission requirements	○	○	○	○	○

Open-ended Responses

31. Identify the three tasks performed by your first-term personnel that require the most strength (along with the MOS for that task). Please be specific and identify the objects/equipment involved in the tasks.

a. _____

b. _____

c. _____

32. Identify the three tasks performed by your first-term personnel that require the most endurance (along with the MOS for that task). For any tasks that are lift or lift-and-carry tasks, write "L" after the task.

a. _____

b. _____

c. _____

Please write any comments on a separate piece of paper (include your MOS).

Appendix B
Formulas for Determining Sample Sizes

Formulas for Determining Sample Sizes

Michael A. White and Barrie L. Cooper

Before discussing the sampling formulas, two terms need to be defined. First, population is defined as the complete set of data that describes your area of interest. If you're interested in obtaining survey attitudes of people in California, the population is everybody residing in California. If you want to survey the people in your organization, the population is everyone in the organization. Second, a sample is any subset of data from the population. No matter what your method of selection is, if you decide to survey something less than everyone in the organization, you are surveying a sample.

To determine sample size, two formulas are needed. The first formula is the general sampling formula, which determines the required sample size for a theoretically *infinite* population size. For very large populations, e.g., populations greater than 50,000, this formula provides a good approximation of the required sample size:

$$\text{Sample} = \frac{CL^2 (PxQ)}{CI^2}$$

CL is the confidence level, which is specified as a Z score. Z scores are units of standard deviation, and typically represents the "tails" at each end of a normal, or "bell," curve that is unaccounted for. The convention for research at the Navy Personnel Research and Development center is 1.96 Z, or just short of 2 standard deviations, which yields a 95 percent confidence level. A Z score of 2.58 represents the 99 percent confidence level.

P is the probability of an occurrence, and Q is the probability of non-occurrence (1–P). Usually in questionnaire sampling, P and Q are both set at .5 (a 50-50 split in answers between two options). Setting both P and Q at .5 results in a somewhat larger sample size, but it is also the most conservative estimate and usually the most defensible choice. If responses to a survey are on a 5-point scale, there are more than two options. However, the conservative and conventional assumption by sampling statisticians is that half the people will answer 1 and the other half will answer 5. Without a firm basis for believing otherwise, this is the response distribution that sampling statisticians state that you should assume.

CI is the confidence interval and is sometimes referred to as the error rate. Convention sets this at either .05 or .01. These values indicate the degree of confidence you may have that the data obtained in your sample reflect the views of the overall population. A confidence interval of .05 in the formula estimates that your sample results should be within 5 percent of the true population score.

If you combine the two concepts of confidence level and confidence interval you can make an accurate estimate of the reliability of measures obtained in a sample. For instance a confidence level of 95 percent and a confidence interval of 5 percent would mean that the sample size should provide you with results that are within 5 percent true population score 95 percent of the time. This of course means that sampled data may *not* represent the views of the population (i.e., be outside the confidence interval) only 5 percent of the time, or one time out of 20. A confidence level of .01 and a confidence interval or error rate of .01 estimates that your results

are representative of the group (i.e., within one percent of the true population score) 99 percent of the time, and *un*representative only 1 percent of the time.

If you work through the formula, setting CL at 1.96, P and Q at .5, and CI at .05 (the convention here at NPRDC), the product always comes out to be 384, as indicated below:

$$\frac{CL^2\,(PxQ)}{CI^2} = \frac{(1.96^2)(.5)(.5)}{.05^2} = \frac{(3.8416)(.25)}{.0025} = \frac{.9604}{.0025} = 384.16 \cong 384$$

You need 384 people for each population you want to sample. If you want a random representative sample of, say, men and women, then you need *two* samples of 384 people. You also need to figure the no-show or non-response rate. If 384 people is the number you want to end up with, you'll probably need to over-sample to allow for those surveys that you don't get back.

The second formula adjusts the result of the first formula to determine the sample for a *finite* population size. Obviously, if your organization population is only 200, you can't sample 384 people. A random representative sample for a smaller group is often much less than 384. So, the correction for a finite population size is represented by the following formula:

$$n' = \frac{N \times n}{N + n}$$

N is the size of the population, n is the sample size you get from the general formula, and n′ is the sample size adjusted for a finite population. Here are examples for population sizes of 3000 and 600:

$$n' = \frac{N \times n}{N + n} = \frac{3000 \times 384}{3000 + 384} = 340.43 \cong 340$$

$$n' = \frac{N \times n}{N + n} = \frac{600 \times 384}{600 + 384} = 234.15 \cong 234$$

As mentioned above, you will probably have less than a 100 percent response rate. For organizational surveys, surveys that we administer in person, we at NPRDC usually see response rates around 70 percent. Using the above formulas, a 70 percent response rate would yield sample sizes of:

$$\frac{340}{.7} = 485.71 \cong 486$$

$$\frac{234}{.7} = 334.29 \cong 334$$

With smaller and smaller populations, there is a point at which the sample size is so close to the population size that sampling becomes irrelevant, in which case you should survey the entire population. For instance, if your sample size calculations point to a sample size in which you would survey nine out of every 10 people, you should simply survey everyone in such groups. Those left out will wonder why they've been singled out and the time and effort involved in such

sampling is simply not worth the small gain. As a rule of thumb, you should strongly consider surveying everyone in groups of 100 or fewer people.

Also, should you wish to survey different subgroups, such as departments or divisions, you will need to use the finite sampling formula for each subgroup in order to obtain a valid sample from each. If each of your subgroups has 100 or fewer people, as stated above, you should try to survey everyone in the organization. When this situation is explained to top management, many organizations have opted for surveying everyone in the organization. They believe that the loss in labor hours is more than compensated for by the positive attitudes that employees feel when they are given the opportunity to provide survey input.

When low response rates are projected, sample sizes must be adjusted upward. And if response rates are lower than projected, it should be an increasing concern whether the sample is representative. When the response rate is only 30 percent—that is, when only three out of ten people return a survey—and you've projected a 70 percent response rate, you should question whether those three out of 10 people have views similar to those of the seven who decided not to respond. (For mail-in surveys, the response rate is often 30% or less). If you do experience a response rate substantially lower than that projected you can obtain the true confidence level and interval simply by using the standard sampling formulas and solving for CL or CI rather than n.

$$n = \frac{N \times n'}{N + n'}$$

An essential part of any opinion survey is that it be voluntary. Aside from the ethical question of coercion, any amount of pressure or coercion on respondents may affect their responses, with the result that the data may not be valid. In addition, surveys must be treated strictly confidentially and so inform the survey respondents. In this way, respondents are assured that their individual responses are not identifiable, so that they may provide honest opinions and perceptions without fear of identification or reprisal.

Appendix C
Survey Sample Sizes, Response Rates, and Confidence Intervals

Table C1a. Return rates for Army Military Occupational Specialties (MOSs) after first mailing

(1) Occupational Specialty (MOS) Incumbents	(2)[1] Population Size	(3)[2] Sample Size	(4)[3] Return to Sender (Apportioned)	(5)[4] Surveys Delivered (3 - 4)	(6)[5] Surveys Returned	(7)[6] Raw Return Rate (6 ÷ 3)	(8)[7] Adjusted Return Rate (6 ÷ 5)	(9)[8] Confidence Interval
Infantryman (11B)	11,185	1,000	156	844	115	11.5%	13.6%	±9.1%
Armor Crewman (19K)	6,361	1,000	156	844	113	11.3%	13.4%	±9.1%
Radio Operator-Maintainer (31C)	733	733	114	619	121	16.5%	19.5%	±8.1%
Chemical Operations Specialist (54B)	1,330	1,000	156	844	105	10.5%	12.4%	±9.2%
Track Vehicle Mechanic (63H)	987	987	154	833	99	10.0%	11.9%	±9.3%
Motor Transport Operator (88M)	1,017	1,000	156	844	97	9.7%	11.5%	±9.4%
Medical Specialist (91B)	6,966	1,000	156	844	153	15.3%	18.1%	±7.8%
Food Service Specialist (92G)	4,113	1,000	156	844	95	9.5%	11.3%	±9.9%
Unit Supply Specialist (92Y)	3,481	1,000	156	844	138	13.8%	16.4%	±8.2%
Military Police (95B)	6,622	1,000	156	844	123	12.3%	14.6%	±8.8%
Other/Missing MOS					20			
Totals	42,795	9,720	1,514	8,206	1,179	12.1%	14.4%	±2.8%

(1) Occupational Specialty (MOS) Supervisors	(2)[1] Population Size	(3)[2] Sample Size	(4)[3] Return to Sender (Apportioned)	(5)[4] Surveys Delivered (3 - 4)	(6)[5] Surveys Returned	(7)[6] Raw Return Rate (6 ÷ 3)	(8)[7] Adjusted Return Rate (6 ÷ 5)	(9)[8] Confidence Interval
Infantryman (11B)	9,937	200	27	173	50	25.0%	28.9%	±13.8%
Armor Crewman (19K)	5,194	200	27	173	54	27.0%	31.2%	±13.3%
Radio Operator-Maintainer (31C)	685	200	27	173	55	27.5%	31.8%	±12.7%
Chemical Operations Specialist (54B)	3,442	200	27	173	52	26.0%	30.1%	±13.5%
Track Vehicle Mechanic (63H)	2,020	200	27	173	60	30.0%	34.7%	±12.5%
Motor Transport Operator (88M)	5,216	200	27	173	52	26.0%	30.1%	±13.5%
Medical Specialist (91B)	5,491	200	27	173	60	30.0%	34.7%	±12.6%
Food Service Specialist (92G)	3,924	200	27	173	36	18.0%	20.8%	±16.3%
Unit Supply Specialist (92Y)	6,471	200	27	173	51	25.5%	29.5%	±13.7%
Military Police (95B)	6,013	200	27	173	67	33.5%	38.7%	±11.9%
Other/Missing MOS					4			
Totals	48,393	2,000	268	1,732	541	27.0%	31.2%	±4.2%

Table C1b. Return rates for Navy Ratings after first mailing

(1) Occupational Specialty (Rating) Incumbents	(2)[1] Population Size	(3)[2] Sample Size	(4)[3] Return to Sender (Apportioned)	(5)[4] Surveys Delivered (3 - 4)	(6)[5] Surveys Returned	(7)[6] Raw Return Rate (6 ÷ 3)	(8)[7] Adjusted Return Rate (6 ÷ 5)	(9)[8] Confidence Interval
Aviation Boatswain's Mate (AB)	2,087	1,000	83	917	120	12.0%	13.1%	±8.7%
Aviation Ordnanceman (AO)	1,654	1,000	83	917	169	16.9%	18.4%	±7.1%
Aviation Support Equipment Technician (AS)	562	562	47	515	93	16.5%	18.1%	±9.3%
Boatswain's Mate (BM)	964	964	80	884	153	15.9%	17.3%	±7.3%
Builder (BU)	990	990	83	907	151	15.3%	16.6%	±7.3%
Damage Controlman (DC)	1,124	1,000	83	917	159	15.9%	17.3%	±7.2%
Electrician's Mate (EM)	1,984	1,000	83	917	188	18.8%	20.5%	±6.8%
Hospital Corpsman (HM)	7,504	1,000	83	917	297	29.7%	32.4%	±5.6%
Hull Technician (HT)	1,157	1,000	83	917	192	19.2%	20.9%	±6.5%
Torpedoman's Mate (TM)	513	513	43	470	105	20.5%	22.3%	±8.5%
Other/Missing Rating					25			
Totals	18,539	9,029	753	8,276	1,652	18.3%	20.0%	±2.3%

(1) Occupational Specialty (Rating) Supervisors	(2)[1] Population Size	(3)[2] Sample Size	(4)[3] Return to Sender (Apportioned)	(5)[4] Surveys Delivered (3 - 4)	(6)[5] Surveys Returned	(7)[6] Raw Return Rate 6 ÷ 3)	(8)[7] Adjusted Return Rate (6 ÷ 5)	(9)[8] Confidence Interval
Aviation Boatswain's Mate (AB)	712	200	20	180	64	32.0%	35.6%	±11.7%
Aviation Ordnanceman (AO)	769	200	20	180	72	36.0%	40.0%	±11.0%
Aviation Support Equipment Technician (AS)	1,597	200	20	180	88	44.0%	48.9%	±10.2%
Boatswain's Mate (BM)	878	200	20	180	73	36.5%	40.6%	±11.0%
Builder (BU)	1,278	200	20	180	88	44.0%	48.9%	±10.1%
Damage Controlman (DC)	2,077	200	20	180	78	39.0%	43.3%	±10.9%
Electrician's Mate (EM)	1,064	200	20	180	88	44.0%	48.9%	±10.0%
Hospital Corpsman (HM)	2,342	200	20	180	78	39.0%	43.3%	±10.9%
Hull Technician (HT)	2,054	200	20	180	85	42.5%	47.2%	±10.4%
Torpedoman's Mate (TM)	429	200	20	180	79	39.5%	43.9%	±10.0%
Other/Missing Rating					9			
Totals	13,200	2,000	196	1,804	802	40.1%	44.5%	±3.4%

Table C1c. Return rates for Air Force Specialty Codes (AFSCs) after first mailing

(1) Occupational Specialty (AFSC) Incumbents	(2)[1] Population Size	(3)[2] Sample Size	(4)[3] Return to Sender (Apportioned)	(5)[4] Surveys Delivered (3 - 4)	(6)[5] Surveys Returned	(7)[6] Raw Return Rate (6 ÷ 3)	(8)[7] Adjusted Return Rate (6 ÷ 5)	(9)[8] Confidence Interval
Tactical Aircraft Maintenance (2A3X3X)	3,717	1,000	106	894	281	28.1%	31.4%	±5.6%
Aerospace Maintenance (2A5X1X)	3,420	1,000	106	894	272	27.2%	30.4%	±5.7%
Telephone Systems (2E6X3X)	636	636	68	568	176	27.7%	31.0%	±6.3%
Munitions Systems (2W0X1)	2,298	1,000	106	894	310	31.0%	34.7%	±5.2%
Aircraft Armament Systems (2W1X1X)	2,825	1,000	106	894	262	26.2%	29.3%	±5.8%
Electrical (3E0X1)	689	689	73	616	167	24.2%	27.1%	±6.6%
Fire Protection (3E7X1)	2,023	1,000	106	894	217	21.7%	24.3%	±6.3%
Security (3P0X1)	5,786	1,000	106	894	101	10.1%	11.3%	±9.7%
Law Enforcement (3P0X2)	3,459	1,000	106	894	124	12.4%	13.9%	±8.6%
Medical Service Technician (X4N0X1)	3,046	1,000	106	894	263	26.3%	29.4%	±5.8%
Other/Missing AFSC					36			
Totals	27,899	9,325	991	8,334	2,209	23.7%	26.5%	±2.0%

(1) Occupational Specialty (AFSC) Supervisors	(2)[1] Population Size	(3)[2] Sample Size	(4)[3] Return to Sender (Apportioned)	(5)[4] Surveys Delivered (3 - 4)	(6)[5] Surveys Returned	(7)[6] Raw Return Rate 6 ÷ 3)	(8)[7] Adjusted Return Rate (6 ÷ 5)	(9)[8] Confidence Interval
Tactical Aircraft Maintenance (2A3X3X)	5,719	200	14	186	75	37.5%	40.3%	±11.2%
Aerospace Maintenance (2A5X1X)	6,632	200	14	186	83	41.5%	44.6%	±10.7%
Telephone Systems (2E6X3X)	751	200	14	186	69	34.5%	37.1%	±11.2%
Munitions Systems (2W0X1)	3,249	200	14	186	103	51.5%	55.4%	±9.5%
Aircraft Armament Systems (2W1X1X)	4,151	200	14	186	73	36.5%	39.2%	±11.4%
Electrical (3E0X1)	728	200	14	186	70	35.0%	37.6%	±11.1%
Fire Protection (3E7X1)	1,555	200	14	186	84	42.0%	45.2%	±10.4%
Security (3P0X1)	5,977	200	14	186	50	25.0%	26.9%	±13.8%
Law Enforcement (3P0X2)	3,160	200	14	186	52	26.0%	28.0%	±13.5%
Medical Service Technician (X4N0X1)	2,974	200	14	186	72	36.0%	38.7%	±11.4%
Other/Missing AFSC					81			
Totals	34,896	2,000	139	1,861	812	40.6%	43.6%	±3.4%

Table C1d. Return rates for Marine Corps Military Occupational Specialties (MOSs) after first mailing

(1) Occupational Specialty (MOS) Incumbents	(2)[1] Population Size	(3)[2] Sample Size	(4)[3] Return to Sender (Apportioned)	(5)[4] Surveys Delivered (3 - 4)	(6)[5] Surveys Returned	(7)[6] Raw Return Rate (6 ÷ 3)	(8)[7] Adjusted Return Rate (6 ÷ 5)	(9)[8] Confidence Interval
Infantry (03XX)	20,444	1,000	88	912	183	18.3%	20.1%	±7.2%
Logistics (04XX)	1,837	1,000	88	912	190	19.0%	20.8%	±6.7%
Artillery (0811)	1,198	1,000	88	912	113	11.3%	12.4%	±8.8%
Engineer (13XX)	5,203	1,000	88	912	133	13.3%	14.6%	±8.4%
Subsistence Supply (3361)	239	239	21	218	42	17.6%	19.3%	±13.7%
Motor Vehicle Operator (3531)	4,340	1,000	88	912	134	13.4%	14.7%	±8.3%
Military Police (5811)	2,044	1,000	88	912	191	19.1%	20.9%	±6.8%
Aircraft Maintenance (60XX)	4,161	1,000	88	912	173	17.3%	19.0%	±7.3%
Aviation Ordnance (6531)	603	603	53	550	121	20.1%	22.0%	±8.0%
Firefighting & Rescue (7051)	445	445	39	406	82	18.4%	20.2%	±9.8%
Other/Missing MOS					29			
Totals	40,514	8,287	733	7,554	1,391	16.8%	18.4%	±2.6%

(1) Occupational Specialty (MOS) Supervisors	(2)[1] Population Size	(3)[2] Sample Size	(4)[3] Return to Sender (Apportioned)	(5)[4] Surveys Delivered (3 - 4)	(6)[5] Surveys Returned	(7)[6] Raw Return Rate 6 ÷ 3)	(8)[7] Adjusted Return Rate (6 ÷ 5)	(9)[8] Confidence Interval
Infantry (03XX)	4,601	200	17	183	68	34.0%	37.2%	±11.8%
Logistics (04XX)	1,157	200	17	183	68	34.0%	37.2%	±11.5%
Artillery (0811)	467	200	17	183	51	25.5%	27.9%	±13.0%
Engineer (13XX)	1,869	200	17	183	66	33.0%	36.1%	±11.8%
Subsistence Supply (3361)	89	89	7	82	23	25.8%	28.0%	±17.6%
Motor Vehicle Operator (3531)	686	200	17	183	62	31.0%	33.9%	±11.9%
Military Police (5811)	669	200	17	183	51	25.5%	27.9%	±13.2%
Aircraft Maintenance (60XX)	2,893	200	17	183	78	39.0%	42.6%	±10.9%
Aviation Ordnance (6531)	429	200	17	183	78	39.0%	42.6%	±10.0%
Firefighting & Rescue (7051)	294	200	17	183	79	39.5%	43.2%	±9.4%
Other/Missing MOS					21			
Totals	13,154	1,889	156	1,733	645	34.1%	37.2%	±3.8%

[1] Population sizes over 1,000 (for incumbents) or 200 (for supervisors) are approximate, based on preliminary figures provided by DMDC-West before drawing the sample. Changes in sample selection criteria may have resulted in small changes in the actual population size.

[2] Sample sizes less than 1,000 (for incumbents) and 200 (for supervisors) indicate that the entire population was sampled.

[3] Exact numbers of Return-to-Sender (RTS) surveys by occupational specialty are not known. RTS totals by service and supervisor/incumbent are allocated proportionally to each occupational specialty.

[4] Number of surveys delivered is sample size minus the apportioned number of RTS surveys (column 3 minus column 4).

[5] Represents the actual number of surveys scanned for each occupational specialty.

[6] Percentage of surveys returned as a proportion of total sample. Used to compute the sample size needed a second sample.

[7] Percentage of surveys returned as a proportion of surveys delivered. All surveys not RTS are assumed to be delivered. Percentage is therefore approximate, because the RTS numbers in column 4 were allocated proportional to the sample size, which affects the computation of surveys delivered, shown in column 5.

[8] Confidence interval computed using a confidence level of .05. The use of this confidence level indicates that, statistically, there is only a 5% probability that the population true score rests outside the confidence interval.

Table C2a. Computation of sample size for second mailing to Army Military Occupational Specialties (MOSs)

(1) Occupational Specialty and Code Incumbents	(2)[1] 2nd Mailing Population Size	(3)[2] Population Size w/o Replacement	(4)[3] 1st Mailing Surveys Returned	(5)[4] Additional Resps.Rqd. for ±7.5%	(6)[5] Total Resps. Rqd. for ±7.5%	(7)[6] Required Sample Size	(8)[7] Sample + Safety Margin	(9)[8] Actual Size of 2nd Sample
Infantryman (11B)	11,132	10,294	115	53	168	514	591	591
Armor Crewman (19K)	6,448	5,612	113	54	167	518	596	596
Radio Operator-Maintainer (31C)	739	69	121	18	139	138	159	69
Chemical Operations Specialist (54B)	1,769	967	105	48	152	551	634	634
Track Vehicle Mechanic (63H)	1,046	195	99	53	146	670	771	195
Motor Transport Operator (88M)	3,962	3,078	97	50	146	587	676	676
Medical Specialist (91B)	7,990	7,122	153	16	167	121	139	139
Food Service Specialist (92G)	4,203	3,347	95	69	164	745	855	855
Unit Supply Specialist (92Y)	3,663	2,806	138	26	163	207	239	239
Military Police (95B)	6,512	5,645	123	44	167	427	491	491
Totals	47,464	39,135	1,148	431	1,579	4,478	5,151	4,485

(1) Occupational Specialty and Code Supervisors	(2)[1] 2nd Mailing Population Size	(3)[2] Population Size w/o Replacement	(4)[3] 1st Mailing Surveys Returned	(5)[4] Additional Resps.Rqd. for ±10%	(6)[5] Total Resps. Rqd. for ±10%	(7)[6] Required Sample Size	(8)[7] Sample + Safety Margin	(9)[8] Actual Size of 2nd Sample
Infantryman (11B)	8,236	8,051	50	45	95	328	377	377
Armor Crewman (19K)	4,723	4,531	54	40	94	227	261	261
Radio Operator-Maintainer (31C)	613	423	55	29	84	191	219	219
Chemical Operations Specialist (54B)	3,129	2,943	52	41	93	303	348	348
Track Vehicle Mechanic (63H)	1,905	1,721	60	32	92	200	230	230
Motor Transport Operator (88M)	4,617	4,424	52	42	94	308	354	354
Medical Specialist (91B)	4,909	4,725	60	34	94	282	324	324
Food Service Specialist (92G)	3,391	3,204	36	58	94	406	467	467
Unit Supply Specialist (92Y)	5,728	5,545	51	41	95	300	345	345
Military Police (95B)	5,467	5,284	67	27	94	136	156	156
Totals	42,718	40,851	537	389	407	2,681	3,081	3,081

Table C2b. Computation of sample size for second mailing to Navy Ratings

(1) Occupational Specialty and Code Incumbents	(2)[1] 2nd Mailing Population Size	(3)[2] Population Size w/o Replacement	(4)[3] 1st Mailing Surveys Returned	(5)[4] Additional Resps.Rqd. for ±7.5%	(6)[5] Total Resps. Rqd. for ±7.5%	(7)[6] Required Sample Size	(8)[7] Sample + Safety Margin	(9)[8] Actual Size of 2nd Sample
Aviation Boatswain's Mate (AB)	2,025	1,272	120	43	158	350	403	403
Aviation Ordnanceman (AO)	1,933	1,130	169	0	155	0	0	0
Aviation Support Equipment Technician (AS)	626	152	93	40	132	247	285	152
Boatswain's Mate (BM)	649	128	153	0	145	0	0	0
Builder (BU)	916	68	151	3	150	21	36	36
Damage Controlman (DC)	1,076	260	159	0	148	0	0	0
Electrician's Mate (EM)	2,599	1,782	188	0	157	0	0	0
Hospital Corpsman (HM)	1,516	919	297	0	167	0	0	0
Hull Technician (HT)	982	196	192	0	171	0	0	0
Torpedoman's Mate (TM)	437	20	105	26	129	131	151	20
Totals	12,759	5,927	1,595	109	1,508	749	875	611

(1) Occupational Specialty and Code Supervisors	(2)[1] 2nd Mailing Population Size	(3)[2] Population Size w/o Replacement	(4)[3] 1st Mailing Surveys Returned	(5)[4] Additional Resps.Rqd. for ±10%	(6)[5] Total Resps. Rqd. for ±10%	(7)[6] Required Sample Size	(8)[7] Sample + Safety Margin	(9)[8] Actual Size of 2nd Sample
Aviation Boatswain's Mate (AB)	1,580	1,391	64	21	85	74	89	89
Aviation Ordnanceman (AO)	1,810	1,617	72	13	85	43	58	58
Aviation Support Equipment Technician (AS)	546	357	88	3	91	9	24	24
Boatswain's Mate (BM)	2,747	2,551	73	14	87	38	53	53
Builder (BU)	679	485	88	1	89	7	22	22
Damage Controlman (DC)	1,303	1,111	78	14	92	36	51	51
Electrician's Mate (EM)	3,051	2,862	88	0	88	2	17	17
Hospital Corpsman (HM)	4,871	4,678	78	14	92	39	54	54
Hull Technician (HT)	1,995	1,801	85	11	96	29	44	44
Torpedoman's Mate (TM)	506	315	79	0	78	...	...	...
Totals	19,088	17,168	793	90	883	277	412	412

Table C2c. Computation of sample size for second mailing to Air Force Specialty Codes (AFSCs)

(1) Occupational Specialty and Code Incumbents	(2)[1] 2nd Mailing Population Size	(3)[2] Population Size w/o Replacement	(4)[3] 1st Mailing Surveys Returned	(5)[4] Additional Resps.Rqd. for ±7.5%	(6)[5] Total Resps. Rqd. for ±7.5%	(7)[6] Required Sample Size	(8)[7] Sample + Safety Margin	(9)[8] Actual Size of 2nd Sample
Tactical Aircraft Maintenance (2A3X3X)	3,691	2,795	281	0	163	0	0	0
Aerospace Maintenance (2A5X1X)	3,351	2,474	272	0	163	0	0	0
Telephone Systems (2E6X3X)	617	30	176	0	135	0	0	0
Munitions Systems (2W0X1)	2,266	1,371	310	0	159	0	0	0
Aircraft Armament Systems (2W1X1X)	2,920	2,003	262	0	161	0	0	0
Electrical (3E0X1)	745	109	167	0	137	0	0	0
Fire Protection (3E7X1)	2,151	1,239	217	0	158	0	0	0
Security (3P0X1)	5,710	4,833	101	69	166	785	903	903
Law Enforcement (3P0X2)	3,453	2,553	124	39	163	370	425	425
Medical Service Tech. (X4N0X1)	2,846	1,979	263	0	162	0	0	0
Totals	27,750	19,386	2,149	108	1,567	1,155	1,328	1,328

(1) Occupational Specialty and Code Supervisors	(2)[1] 2nd Mailing Population Size	(3)[2] Population Size w/o Replacement	(4)[3] 1st Mailing Surveys Returned	(5)[4] Additional Resps.Rqd. for ±10%	(6)[5] Total Resps. Rqd. for ±10%	(7)[6] Required Sample Size	(8)[7] Sample + Safety Margin	(9)[8] Actual Size of 2nd Sample
Tactical Aircraft Maintenance (2A3X3X)	5,551	5,357	75	19	94	51	66	66
Aerospace Maintenance (2A5X1X)	6,583	6,385	83	12	95	41	56	56
Telephone Systems (2E6X3X)	720	534	69	16	85	50	65	65
Munitions Systems (2W0X1)	3,205	3,019	103	0	93	0	0	0
Aircraft Armament Systems (2W1X1X)	4,028	3,839	73	21	94	61	76	76
Electrical (3E0X1)	792	602	70	15	85	46	61	61
Fire Protection (3E7X1)	1,583	1,392	84	6	90	20	35	35
Security (3P0X1)	5,887	5,691	50	44	94	176	202	202
Law Enforcement (3P0X2)	3,144	2,950	52	41	93	165	189	189
Medical Service Tech. (X4N0X1)	2,979	2,785	72	21	93	58	73	73
Totals	34,472	32,554	731	195	916	668	823	823

Table C2d. Computation of sample size for second mailing to Marine Corps Military Occupational Specialties (MOSs)

(1) Occupational Specialty and Code Incumbents	(2)[1] 2nd Mailing Population Size	(3)[2] Population Size w/o Replacement	(4)[3] 1st Mailing Surveys Returned	(5)[4] Additional Resps.Rqd. for ±7.5%	(6)[5] Total Resps. Rqd. for ±7.5%	(7)[6] Required Sample Size	(8)[7] Sample + Safety Margin	(9)[8] Actual Size of 2nd Sample
Infantry (03XX)	19,254	18,395	183	0	170	0	0	0
Logistics (04XX)	1,582	759	190	0	156	0	0	0
Artillery (0811)	1,214	335	113	40	150	402	462	335
Engineer (13XX)	4,759	3,911	133	35	166	287	331	331
Subsistence Supply (3361)	229	21	42	58	100	330	379	21
Motor Vehicle Operator (3531)	4,235	3,347	134	33	165	260	298	298
Military Police (5811)	1,968	1,084	191	0	158	0	0	0
Aircraft Maintenance (60XX)	3,873	3,036	173	0	164	0	0	0
Aviation Ordnance (6531)	631	100	121	13	133	82	97	97
Firefighting & Rescue (7051)	483	104	82	0	124	0	0	0
Totals	38,228	31,092	1,348	179	1,486	1,361	1,567	1,082

(1) Occupational Specialty and Code Supervisors	(2)[1] 2nd Mailing Population Size	(3)[2] Population Size w/o Replacement	(4)[3] 1st Mailing Surveys Returned	(5)[4] Additional Resps.Rqd. for ±10%	(6)[5] Total Resps. Rqd. for ±10%	(7)[6] Required Sample Size	(8)[7] Sample + Safety Margin	(9)[8] Actual Size of 2nd Sample
Infantry (03XX)	5,216	5,014	68	26	94	85	100	100
Logistics (04XX)	1,249	1,039	68	21	89	62	77	77
Artillery (0811)	530	322	51	29	80	127	146	146
Engineer (13XX)	1,965	1,784	66	25	91	76	91	91
Subsistence Supply (3361)	89	7	23	23	46	89	104	7
Motor Vehicle Operator (3531)	724	551	62	22	84	80	95	95
Military Police (5811)	746	559	51	33	84	136	156	156
Aircraft Maintenance (60XX)	3,198	2,983	78	15	93	42	57	57
Aviation Ordnance (6531)	458	251	78	0	78	5	20	20
Firefighting & Rescue (7051)	340	147	79	0	72	0	0	0
Totals	14,515	12,657	624	194	811	702	846	749

[1] Population totals for second sample, drawn January 1998. Date of database was October 1997. Includes only those personnel assigned to a billet requiring the individual's Rating or primary MOS/AFSC. Personnel without a mailing address were excluded.

[2] Population excluding names drawn in the first sample. Totals for some jobs were less than the sample size needed to achieve the desired confidence interval, thus defining the upper limit available for the second sample.

[3] Total number of surveys returned for each job. Some surveys were received after computations were made for second sample

[4] Sample size computed for second mailing may be slightly larger than necessary to achieve the desired confidence interval, due to receipt of some surveys after computation of sample sizes for second mailing.

[5] Computation based on population totals received from DMDC when the first sample was drawn. In compiling this report, it was determined that actual population sizes used to draw the first sample were different from those initially received. Correcting the population size resulted in small changes to confidence interval computations.

[6] Estimated number of surveys required to obtain the desired confidence interval, based on the return rate from the first mailing. As stated in note 5, this computation was based on population totals received from DMDC when the first sample was drawn. A small number of surveys were received after these numbers were computed.

[7] Column 7 plus a safety margin of 15% or 15 surveys, whichever is larger.

[8] For jobs in which column 9 is less than column 8, it is due to the limited population available, shown in column 3 (see note 2).

Table C3a. Return rates for Army Military Occupational Specialties (MOSs) after second mailing

(1) Occupational Specialty (MOS) Incumbents	(2)[1] 2nd Mailing Sample Size	(3)[2] Return to Sender (Apportioned)	(4)[3] Surveys Delivered (2 - 3)	(5)[4] 2nd Mailing Surveys Returned	(6)[5] Raw Return Rate (5 ÷ 2)	(7)[6] Adjusted Return Rate (5 ÷ 4)	(8)[7] 1st Mailing Surveys Returned	Total Surveys Returned	(9)[8] Final Confidence Interval
Infantryman (11B)	591	155	436	61	10.3%	14.0%	115	176	±7.3%
Armor Crewman (19K)	596	156	440	56	9.4%	12.7%	113	169	±7.4%
Radio Operator-Maintainer (31C)	69	18	51	4	5.8%	7.8%	121	125	±8.0%
Chemical Operations Specialist (54B)	634	166	468	36	5.7%	7.7%	105	141	±7.8%
Track Vehicle Mechanic (63H)	195	51	144	16	8.2%	11.1%	99	115	±8.6%
Motor Transport Operator (88M)	676	177	499	61	9.0%	12.2%	97	158	±7.2%
Medical Specialist (91B)	139	36	103	20	14.4%	19.4%	153	173	±7.4%
Food Service Specialist (92G)	855	224	631	71	8.3%	11.3%	95	166	±7.5%
Unit Supply Specialist (92Y)	239	63	176	25	10.5%	14.2%	138	163	±7.5%
Military Police (95B)	491	129	362	54	11.0%	14.9%	123	177	±7.3%
Other/Missing MOS				6			20	26	
Totals	4,485	1,177	3,308	410	9.1%	12.4%	1,179	1,589	±2.4%

(1) Occupational Specialty (MOS) Supervisors	(2)[1] 2nd Mailing Sample Size	(3)[2] Return to Sender (Apportioned)	(4)[3] Surveys Delivered (2 - 3)	(5)[4] 2nd Mailing Surveys Returned	(6)[5] Raw Return Rate (5 ÷ 2)	(7)[6] Adjusted Return Rate (5 ÷ 4)	(8)[7] 1st Mailing Surveys Returned	(9)[8] Total Surveys Returned	Final Confidence Interval
Infantryman (11B)	377	42	335	87	23.1%	26.0%	50	137	±8.5%
Armor Crewman (19K)	261	30	231	54	20.7%	23.4%	54	108	±9.3%
Radio Operator-Maintainer (31C)	219	25	194	43	19.6%	22.2%	55	98	±9.0%
Chemical Operations Specialist (54B)	348	40	308	79	22.7%	25.6%	52	131	±8.4%
Track Vehicle Mechanic (63H)	230	27	203	47	20.4%	23.2%	60	107	±9.2%
Motor Transport Operator (88M)	354	41	313	95	26.8%	30.4%	52	147	±7.9%
Medical Specialist (91B)	324	38	286	83	25.6%	29.0%	60	143	±8.1%
Food Service Specialist (92G)	467	54	413	95	20.3%	23.0%	36	131	±8.4%
Unit Supply Specialist (92Y)	345	40	305	85	24.6%	27.9%	51	136	±8.2%
Military Police (95B)	156	18	138	26	16.7%	18.8%	67	93	±10.1%
Other/Missing MOS				9			4	13	
Totals	3,081	358	2,723	703	22.8%	25.8%	541	1,244	±2.7%

Table C3b. Return rates for Navy Ratings after second mailing

(1) Occupational Specialty (Rating) Incumbents	(2)[1] 2nd Mailing Sample Size	(3)[2] Return to Sender (Apportioned)	(4)[3] Surveys Delivered (2 - 3)	(5)[4] 2nd Mailing Surveys Returned	(6)[5] Raw Return Rate (5 ÷ 2)	(7)[6] Adjusted Return Rate (5 ÷ 4)	(8)[7] 1st Mailing Surveys Returned	(9)[8] Total Surveys Returned	Final Confidence Interval
Aviation Boatswain's Mate (AB)	403	78	325	33	8.2%	10.2%	120	153	±7.6%
Aviation Ordnanceman (AO)	0	0	0	1			169	170	±7.1%
Aviation Support Equipment Tech. (AS)	152	30	122	8	5.3%	6.6%	93	101	±8.8%
Boatswain's Mate (BM)	0	0	0	0			153	153	±7.3%
Builder (BU)	36	7	29	7	19.4%	24.1%	151	158	±7.1%
Damage Controlman (DC)	0	0	0	0			159	159	±7.2%
Electrician's Mate (EM)	0	0	0	0			188	188	±6.8%
Hospital Corpsman (HM)	0	0	0	1			297	298	±5.6%
Hull Technician (HT)	0	0	0	0			192	192	±6.5%
Torpedoman's Mate (TM)	20	4	16	3	15.0%	18.8%	105	108	±8.4%
Other/Missing Rating				0			25	25	
Totals	611	119	492	53	8.7%	10.8%	1,652	1,705	±2.3%

(1) Occupational Specialty (Rating) Supervisors	(2)[1] 2nd Mailing Sample Size	(3)[2] Return to Sender (Apportioned)	(4)[3] Surveys Delivered (2 - 3)	(5)[4] 2nd Mailing Surveys Returned	(6)[5] Raw Return Rate (5 ÷ 2)	(7)[6] Adjusted Return Rate (5 ÷ 4)	(8)[7] 1st Mailing Surveys Returned	(9)[8] Total Surveys Returned	Final Confidence Interval
Aviation Boatswain's Mate (AB)	89	8	81	25	28.1%	30.9%	64	89	±10.1%
Aviation Ordnanceman (AO)	58	5	53	21	36.2%	39.6%	72	93	±9.9%
Aviation Support Equipment Tech. (AS)	24	2	22	7	29.2%	31.8%	88	95	±9.2%
Boatswain's Mate (BM)	53	5	48	16	30.2%	33.3%	73	89	±10.2%
Builder (BU)	22	2	20	8	36.4%	40.0%	88	96	±9.3%
Damage Controlman (DC)	51	4	47	17	33.3%	36.2%	78	95	±9.7%
Electrician's Mate (EM)	17	1	16	7	41.2%	43.8%	88	95	±9.9%
Hospital Corpsman (HM)	54	5	49	33	61.1%	67.3%	78	111	±9.2%
Hull Technician (HT)	44	4	40	13	29.6%	32.5%	85	98	±9.7%
Torpedoman's Mate (TM)	0	0	0	0			79	79	±10.0%
Other/Missing Rating				2			9	11	
Totals	412	35	377	149	36.2%	39.5%	802	951	±3.1%

Table C3c. Return rates for Air Force Specialty Codes (AFSCs) after second mailing

(1) Occupational Specialty (AFSC) Incumbents	(2)[1] 2nd Mailing Sample Size	(3)[2] Return to Sender (Apportioned)	(4)[3] Surveys Delivered (2 - 3)	(5)[4] 2nd Mailing Surveys Returned	(6)[5] Raw Return Rate (5 ÷ 2)	(7)[6] Adjusted Return Rate (5 ÷ 4)	(8)[7] 1st Mailing Surveys Returned	(9)[8] Total Surveys Returned	Final Confidence Interval
Tactical Aircraft Maintenance (2A3X3X)	0	0	0	0			281	281	±5.6%
Aerospace Maintenance (2A5X1X)	0	0	0	0			272	272	±5.7%
Telephone Systems (2E6X3X)	0	0	0	0			176	176	±6.3%
Munitions Systems (2W0X1)	0	0	0	1			310	311	±5.2%
Aircraft Armament Systems (2W1X1X)	0	0	0	2			262	264	±5.7%
Electrical (3E0X1)	0	0	0	0			167	167	±6.6%
Fire Protection (3E7X1)	0	0	0	0			217	217	±6.3%
Security (3P0X1)	903	101	802	86	9.5%	10.7%	101	187	±7.0%
Law Enforcement (3P0X2)	425	48	377	37	8.7%	9.8%	124	161	±7.5%
Medical Service Technician (X4N0X1)	0	0	0	0			263	263	±5.8%
Other/Missing AFSC				9			36	45	
Totals	1,328	149	1,179	135	10.2%	11.5%	2,209	2,344	±1.9%

(1) Occupational Specialty (AFSC) Supervisors	(2)[1] 2nd Mailing Sample Size	(3)[2] Return to Sender (Apportioned)	(4)[3] Surveys Delivered (2 - 3)	(5)[4] 2nd Mailing Surveys Returned	(6)[5] Raw Return Rate (5 ÷ 2)	(7)[6] Adjusted Return Rate (5 ÷ 4)	(8)[7] 1st Mailing Surveys Returned	(9)[8] Total Surveys Returned	Final Confidence Interval
Tactical Aircraft Maintenance (2A3X3X)	66	4	62	22	33.3%	35.5%	75	97	±9.9%
Aerospace Maintenance (2A5X1X)	56	4	52	20	35.7%	38.5%	83	103	±9.6%
Telephone Systems (2E6X3X)	65	4	61	23	35.4%	37.7%	69	92	±9.6%
Munitions Systems (2W0X1)	0	0	0	1			103	104	±9.5%
Aircraft Armament Systems (2W1X1X)	76	5	71	34	44.7%	47.9%	73	107	±9.4%
Electrical (3E0X1)	61	4	57	21	34.4%	36.8%	70	91	±9.7%
Fire Protection (3E7X1)	35	2	33	12	34.3%	36.4%	84	96	±9.7%
Security (3P0X1)	202	13	189	47	23.3%	24.9%	50	97	±9.9%
Law Enforcement (3P0X2)	189	12	177	38	20.1%	21.5%	52	90	±10.2%
Medical Service Technician (X4N0X1)	73	5	68	20	27.4%	29.4%	72	92	±10.1%
Other/Missing AFSC				42			81	123	
Totals	823	53	770	280	34.0%	36.4%	812	1,092	±2.9%

Table C3d. Return rates for Marine Corps Military Occupational Specialties (MOSs) after second mailing

(1) Occupational Specialty (MOS) Incumbents	(2)[1] 2nd Mailing Sample Size	(3)[2] Return to Sender (Apportioned)	(4)[3] Surveys Delivered (2 - 3)	(5)[4] 2nd Mailing Surveys Returned	(6)[5] Raw Return Rate (5 ÷ 2)	(7)[6] Adjusted Return Rate (5 ÷ 4)	(8)[7] 1st Mailing Surveys Returned	(9)[8] Total Surveys Returned	Final Confidence Interval
Infantry (03XX)	0	0	0	0			183	183	±7.2%
Logistics (04XX)	0	0	0	2			190	192	±6.7%
Artillery (0811)	335	23	312	17	5.1%	5.4%	113	130	±8.1%
Engineer (13XX)	331	23	308	53	16.0%	17.2%	133	186	±7.1%
Subsistence Supply (3361)	21	1	20	3	14.3%	15.0%	42	45	±13.2%
Motor Vehicle Operator (3531)	298	20	278	33	11.1%	11.9%	134	167	±7.4%
Military Police (5811)	0	0	0	0			191	191	±6.8%
Aircraft Maintenance (60XX)	0	0	0	0			173	173	±7.3%
Aviation Ordnance (6531)	97	7	90	11	11.3%	12.2%	121	132	±7.5%
Firefighting & Rescue (7051)	0	0	0	0			82	82	±9.8%
Other/Missing MOS				6			29	35	
Totals	1,082	74	1,008	125	11.6%	12.4%	1,391	1,516	±2.5%

(1) Occupational Specialty (MOS) Supervisors	(2)[1] 2nd Mailing Sample Size	(3)[2] Return to Sender (Apportioned)	(4)[3] Surveys Delivered (2 - 3)	(5)[4] 2nd Mailing Surveys Returned	(6)[5] Raw Return Rate (5 ÷ 2)	(7)[6] Adjusted Return Rate (5 ÷ 4)	(8)[7] 1st Mailing Surveys Returned	(9)[8] Total Surveys Returned	Final Confidence Interval
Infantry (03XX)	100	9	91	28	28.0%	30.8%	68	96	±9.9%
Logistics (04XX)	77	7	70	24	31.2%	34.3%	68	92	±9.8%
Artillery (0811)	146	13	133	31	21.2%	23.3%	51	82	±9.9%
Engineer (13XX)	91	8	83	27	29.7%	32.5%	66	93	±9.9%
Subsistence Supply (3361)	7	1	6	2	28.6%	33.3%	23	25	±16.6%
Motor Vehicle Operator (3531)	95	9	86	20	21.1%	23.3%	62	82	±10.2%
Military Police (5811)	156	14	142	43	27.6%	30.3%	51	94	±9.5%
Aircraft Maintenance (60XX)	57	5	52	21	36.8%	40.4%	78	99	±9.7%
Aviation Ordnance (6531)	20	2	18	7	35.0%	38.9%	78	85	±9.6%
Firefighting & Rescue (7051)	0	0	0	0			79	79	±9.7%
Other/Missing MOS				10			21	31	
Totals	749	69	680	213	28.4%	31.3%	645	858	±3.2%

[1] Population sizes over 1,000 (for incumbents) or 200 (for supervisors) are approximate, based on preliminary figures provided by DMDC-West before drawing the sample. Changes in sample selection criteria may have resulted in small changes in the actual population size.

[2] Sample sizes less than 1,000 (for incumbents) and 200 (for supervisors) indicate that the entire population was sampled.

[3] Exact numbers of Return-to-Sender (RTS) surveys by occupational specialty are not known. RTS totals by service and supervisor/incumbent are allocated proportionally to each occupational specialty.

[4] Number of surveys delivered is sample size minus the apportioned number of RTS surveys (column 3 minus column 4).

[5] Represents the actual number of surveys scanned for each occupational specialty.

[6] Percentage of surveys returned as a proportion of total sample. Used to compute the sample size needed a second sample.

[7] Percentage of surveys returned as a proportion of surveys delivered. All surveys not RTS are assumed to have been delivered. Percentage is therefore approximate, because the RTS numbers in column 4 were allocated proportional to the sample size, which affects the computation of surveys delivered, shown in column 5.

[8] Confidence interval computed using a confidence level of .05. The use of this confidence level indicates that, statistically, there is only a 5% probability that the population true score rests outside the confidence interval.

Appendix D
Personnel Reporting Changing to New Occupational Specialties

Table D-1. Occupational specialties of respondents who changed their MOS/Rating/AFSC to one included in the study

Service Branch	Occupational specialty	MOS/Rating/AFS	Frequency
Army	Infantryman	11B	1
	Armor Crewman	19K	2
	Radio Operator-Maintainer	31C	2
	Chemical Operations Specialist	54B	1
	Track Vehicle Repairer	63H	1
	Food Service Specialist	92G	2
	Unit Supply Specialist	92Y	4
Navy	Aviation Ordnanceman	AO	3
	Builder	BU	1
	Damage Controlman	DC	1
	Electrician's Mate	EM	1
	Hospital Corpsman	HM	1
	Other		1
Air Force	Aircraft Armament Systems	2W1X1X	2
	Security	3P0X1	3
Marine Corps	Infantry	03XX	3
	Artillery	0811	1
	Engineer	13XX	2
	Motor Vehicle Operator	3531	1
	Military Police	5811	1
	Aircraft Maintenance	60XX	1
	Firefighting and Rescue	7051	1
Total			36